The University of Wollongong

Calendar 1976

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The University of Wollongong Library has catalogued
this work as follows:
UNIVERSITY OF WOLLONGONG
Calendar—University of Wollongong—
Wollongong: Univ. of Wollongong,
1976-
Annual

Continues: University of Wollongong
Handbook
ISSN 0312-0007
378.944

CONTENTS

Information in this Calendar is current at the time of printing, but may be amended without notice by the University Council.

The University

PREFACE

The University of Wollongong was incorporated by an Act of the New South Wales Parliament on 30th November, 1972. Ten years earlier, in 1962, it had begun operation on its present site as Wollongong University College, a College of the University of New South Wales. Parts 1 and 2 of the Act came into effect in 1972. Part 3 was realized when the University was established on 1st January, 1975.

The first year of the new University has seen an expansion of the building activity on the campus which includes completion of Stage II of the Library, a Social Sciences Building, a Lecture Theatre complex, Stage III of the Union and an extension of the Science Building.

Courses offered at present lead to undergraduate and higher degrees in Arts, Commerce, Science, Engineering and Metallurgy. Postgraduate diplomas in Accountancy and Education are also offered.

Details of the University's courses, degree requirements and admission and enrolment procedures are provided in this Calendar. Students and intending students are advised to contact the Student Enquiries Section of the University for any further information they may require.

Students enrolled prior to 1974 and undertaking degrees of the University of New South Wales should consult the University of New South Wales Calendar, 1975, or the Wollongong University College Handbook, 1974, for details of regulations. Students enrolled for the first time in 1974 and opting to take degrees under the regulations of the University of New South Wales should also consult these publications.

CALENDAR OF DATES

Session 1

March 1 to May 9
MAY RECESS May 10 to May 23
May 24 to June 20
STUDY RECESS June 21 to June 27
EXAMINATIONS June 28 to July 11*
MID-YEAR RECESS July 12 to July 18

January	Monday 26	Australia Day
February	Thursday 5	Enrolment of new students (First round offers)
	Friday 6	"
	Thursday 19	Enrolment of new students (Second round offers)
	Monday 23	Re-enrolment
	Tuesday 24	"
	Wednesday 25	"
	Thursday 26	"
	Friday 27	"
March	Monday 1	Session 1 lectures commence
April	Friday 16	Easter holidays commence
	Monday 19	Easter holidays end
	Monday 26	Anzac Day holiday
May	Monday 10	May recess commences
	Sunday 23	May recess ends
June	Friday 11	Graduation Ceremony
	Monday 14	Queen's Birthday
	Sunday 20	Session 1 ends
	Monday 21	Study recess commences
	Sunday 27	Study recess ends
	Monday 28	Examinations commence

* This period may need to be extended.

Session 2

July 19 to August 22
AUGUST RECESS August 23 to August 29
August 30 to October 31
STUDY RECESS November 1 to November 7
EXAMINATIONS November 8 to November 30*

July	Monday 12	Mid-year recess commences
	Sunday 18	Mid-year recess ends
	Monday 19	Session 2 lectures commence
August	Monday 23	August recess commences
	Sunday 29	August recess ends
September		
October	Monday 4	Eight Hour Day
	Sunday 31	Session 2 ends
November	Monday 1	Study recess commences
	Sunday 7	Study recess ends
	Monday 8	Examinations commence
	Tuesday 30	Examinations end
December		

* This period may need to be extended.

THE UNIVERSITY OF WOLLONGONG ACT 1972

An Act to provide for the establishment and incorporation of a University at Wollongong; to constitute a Council of the University and define its powers, authorities, duties and functions; to vest certain property in the University; to dissolve the Wollongong University College; to amend the Superannuation Act, 1916, the Local Government Act, 1919, and certain other Acts in certain respects; and for purposes connected therewith. (Assented to, 30th November, 1972.)

BE it enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:—

Part I.

PRELIMINARY.

Short title and division of Act.

1. (1) This Act may be cited as the "University of Wollongong Act, 1972".

(2) This Act is divided as follows:—

Part I.—PRELIMINARY—ss. 1-3.

Part II.—VICE-CHANCELLOR DESIGNATE—ss. 4-7.

Part III.—THE UNIVERSITY OF WOLLONGONG—ss. 8-41.

Schedule.

Commencement.

2. (1) This section and sections 1 and 3 commence on the date of assent to this Act.

(2) Part II shall commence upon such day as may be appointed by the Governor in respect thereof and as may be notified by proclamation published in the Gazette.

(3) Part III shall commence upon such day as may be appointed by the Governor in respect thereof and as may be notified by proclamation published in the Gazette being a day that is later than the day appointed pursuant to subsection (2).

Interpretation.

3. In this Act, unless the context or subject-matter otherwise indicates or requires—

"by-laws" means by-laws made under this Act;

"Chancellor" means Chancellor of the University;

"College" means Wollongong University College established and maintained by The University of New South Wales under the provisions of the University of New South Wales Act, 1968;

"College Council" means Council of the College;

"Committee" means Selection Committee constituted under Part II;

"Council" means Council of the University;

"Deputy Chancellor" means Deputy Chancellor of the University;

"University" means The University of Wollongong;

"Vice-Chancellor" means Vice-Chancellor of the University.

Part II.

VICE-CHANCELLOR DESIGNATE.

Selection Committee.

4. (1) The Minister shall constitute a committee consisting of eight members to hold office until the commencement of Part III of whom—

(*a*) one shall, by reason of his being the holder of, or a person who was the holder of, the office of Vice-Chancellor of any University in Australia, be appointed by the Minister as Chairman of the Committee;

(*b*) one shall be appointed by reason of his being the Chairman of the New South Wales Universities Board or a member of that Board nominated by that Chairman to be appointed to the Committee;

(*c*) two shall be appointed by the Minister; and

(*d*) four shall be elected members.

(2) The elected members of the Committee shall be qualified as is prescribed by this subsection and shall comprise—

(*a*) a person who is a professor, and a person who is not a professor, both elected by and from the professors, associate professors, senior lecturers and lecturers of the full-time staff of the College, the Librarian, the Bursar, the Registrar and the Secretary of the College; and

(*b*) two persons elected by and from the members of the College Council, both being persons who are ineligible for election to the Committee pursuant to paragraph (*a*).

(3) A casual vacancy occurs in the Committee where—

(*a*) in the case of the member referred to in subsection (1) (*b*), that member ceases to be the Chairman of the New South Wales Universities Board, or where the member referred to in subsection (1) (*b*) is a member of the Board nominated by that Chairman, that member ceases to be a member of the Board;

(*b*) in the case of an elected member, that member ceases to hold the qualification by reason of which he was eligible for election to the Committee;

(c) a member dies;

(*d*) a member becomes a temporary patient or a continued treatment patient, a protected person or an incapable person within the meaning of the Mental Health Act, 1958, or a person under detention under Part VII of that Act;

(e) a member resigns his membership in writing under his hand addressed to the Minister; or

(*f*) for any reason the Minister deems fit, a member is removed by the Minister from office as a member of the Committee.

(4) A casual vacancy shall—

(a) in the case of an elected member, be filled by a person qualified and elected in accordance with subsection (2); and

(*b*) in any other case, be filled by a person qualified in accordance with subsection (1) (a), (*b*) or (c) to fill the vacancy concerned.

(5) Meetings of the Committee shall be convened by the Chairman of the Committee.

(6) At any meeting of the Committee—

(a) six members shall form a quorum;

(*b*) a decision of the majority of the members present at the meeting shall be the decision of the Committee; and

(c) the Chairman, in the event of there being an equality of votes, may give a casting vote.

(7) Any act or proceeding of the Committee is, notwithstanding that at any time when the act or proceeding was done, taken or commenced there was—

(a) a vacancy in the office of the membership of the Committee; or

(*b*) any defect in the appointment, or any disqualification, of a member of the Committee,

as valid as if the vacancy, defect or disqualification did not exist and the Committee were fully and properly constituted.

(8) Any election for the purpose of electing the elected members of the Committee shall be conducted by the Registrar of The University of New South Wales at such time or times and in such manner as that Registrar deems fit.

Powers, duties and functions of Committee.

5. The Committee shall be charged with the power to select a person to be the Vice-Chancellor designate of the University and for that purpose shall—

(a) at a meeting convened as soon as practicable whenever the Minister notifies the Chairman that there is a vacancy in the office of Vice-Chancellor designate of the University, arrange to call for applications for that office to be made on or before a stated day;

(*b*) meet as soon as practicable after that stated day with a view to selecting a person to be the holder of that office;

(c) determine in consultation with the Council of The University of New South Wales and the College Council or, where either Council has appointed persons to be its representatives for the purpose, those persons, the terms upon which and conditions subject to which a person may, pursuant to section 6, continue or be appointed as a member of the full-time staff of the College and take office under section 20 (1) as Vice-Chancellor; and

(*d*) where a person is selected for appointment to that office, recommend the appointment to the Council of The University of New South Wales.

Appointment of Vice-Chancellor designate.

6. (1) Subject to subsection (2) the Council of The University of New South Wales shall, upon such terms and conditions as are determined pursuant to section 5 (*c*), appoint the person recommended by the Committee pursuant to section 5 (*d*) as the Vice-Chancellor designate of the University who shall be a member of the full-time staff of the College.

(2) Notwithstanding the terms and conditions determined pursuant to section 5 (*c*), where the person appointed under subsection (1) is, at the time of his appointment, a member of the full-time staff of The University of New South Wales, he shall not be appointed to the office of Vice-Chancellor designate of the University upon terms and conditions less favourable than those upon which he was employed immediately before that appointment.

Reference of certain matters to Minister.

7. (1) Where the Committee is unable to determine any matter the Chairman shall refer the matter to the Minister for resolution.

(2) Any decision of the Minister in respect of any matter referred to him under this section shall be as final and binding as if the decision were made by the Committee.

Part III.

THE UNIVERSITY OF WOLLONGONG.

Establishment of University

8. A University, consisting of—

(a) a Council;

(b) Convocation;

(c) the professors and such other classes of persons giving instruction within the University as may be prescribed by the by-laws and such superior officers within the University as may be so prescribed; and

(d) the graduates and students of the University,

is hereby established at Wollongong in the State of New South Wales.

Incorporation of University.

9. (1) The University is a body corporate under the name of "The University of Wollongong".

(2) The common seal of the University shall be kept in such custody as the Council may direct and shall not be used except by resolution of the Council.

Functions of the University.

10. The functions of the University shall, within the limits of its resources and subject to this Act and the by-laws, include—

(a) the provision at Wollongong or elsewhere of educational facilities at university standard for any persons enrolled therein;

(b) the dissemination and increase of knowledge and the promotion of scholarship; and

(c) the conferring and awarding of degrees and diplomas.

Facilities to be provided for students.

11. The University may, for the purpose of discharging its functions, provide from time to time such facilities for its students as it deems desirable.

The Council.

12. (1) There shall be a Council of the University which, subject to subsection (3), shall have and may exercise and discharge the powers, authorities, duties and functions conferred and imposed upon the Council by or under this Act.

(2) The Council shall be the governing authority of the University.

(3) The provisions of sections 17, 18 and 19 do not apply to and in respect of the Council constituted under section 14.

Committees.

13. (1) The Council may by resolution appoint such committees as it thinks fit to assist and advise it in the carrying out of its functions and the exercise of its powers under this Act.

(2) A committee appointed under subsection (1) shall have, and may exercise and discharge, such powers, authorities, duties and functions as the Council may determine.

Constitution of first Council.

14. (1) The first Council shall consist of—

(a) the persons who immediately before the commencement of this Part held office as members of the College Council other than such members of that Council as, at that commencement, are members of the full-time staff of The University of New South Wales; and

(b) the person who, immediately before that commencement, held office, pursuant to section 6, as Vice-Chancellor designate of the University, unless he becomes a member of the Council pursuant to paragraph (a).

(2) The members of the first Council shall, subject to this Act, hold office until the Council duly constituted under section 15 assumes office.

(3) Where a casual vacancy occurs in the office of any member of the first Council the Governor may appoint a person to the vacant office and the person so appointed shall hold office for the residue of his predecessor's term of office.

(4) The first meeting of the first Council shall be convened by the Vice-Chancellor who shall preside until a Chairman is elected pursuant to subsection (6).

(5) At any meeting of the first Council one-half (or where one-half is not a whole number the whole number next higher than one-half) of the total number of members for the time being of that Council, shall form a quorum.

(6) The members of the first Council shall, at their first meeting, elect from among their number a Chairman and Vice-Chairman.

(7) Subject to subsection (4), at every meeting of the first Council the Chairman or, if he is not present, the Vice-Chairman shall preside, but if both the Chairman and Vice-Chairman are not present, the members present shall elect a person from among their number to preside as Chairman.

(8) The first Council shall take all steps necessary to ensure so far as possible that a Council is duly constituted under section 15 so as to take office within six months after the commencement of this Part or within such extended time as the Governor may, by proclamation published in the Gazette at any time during that period of six months, specify.

Constitution of Council other than first Council.

15. (1) The Council, other than the first Council—

(a) shall be constituted in accordance with this section; and

(b) shall assume office upon such day as the Governor may appoint in that behalf and notify by proclamation published in the Gazette.

(2) The Council shall consist of—

(a) parliamentary members;

(*b*) official members;

(*c*) nominated members; and

(*d*) elected student and non-student members.

(3) The parliamentary members of the Council shall be—

(*a*) a member of the Legislative Council elected by that Council—

(i) as soon as practicable after the commencement of this Part and thereafter as soon as practicable after the commencement of the term of service of the members of that Council elected as required by section 17F (5) of the Constitution Act, 1902; or

(ii) where there is a casual vacancy in the office of a parliamentary member of the Council held pursuant to subparagraph (i), as soon as practicable after that office becomes vacant; and

(*b*) a member of the Legislative Assembly elected by that Assembly—

(i) as soon as practicable after the commencement of this Part and thereafter as soon as practicable after each general election of members of the Legislative Assembly; or

(ii) where there is a casual vacancy in an office of a parliamentary member of the Council held pursuant to subparagraph (i), as soon as practicable after that office becomes vacant.

(4) The official members of the Council shall be—

(*a*) the person for the time being holding the office of Chancellor, where he is not otherwise a member of the Council; and

(*b*) the person for the time being holding the office of Vice-Chancellor.

(5) The nominated members shall comprise four persons appointed by the Governor on the nomination of the Minister.

(6) The elected student members of the Council shall comprise two persons who are qualified and elected in each case as may be prescribed by the by-laws by and from persons who are enrolled as candidates proceeding to a degree or diploma in the University (other than persons so enrolled who are members of the full-time staff of the University).

(7) The elected non-student members of the Council shall be qualified and elected in each case or for each class as may be prescribed by this subsection and the by-laws and shall comprise—

(a) three persons, none of whom shall be a member of the full-time staff of the University, so elected by such of the members of Convocation as are included in a list prepared for the purposes of this subsection in accordance with the by-laws;

(b) four persons, of whom one shall not be, and each of the others shall be, a professor within the University, so elected by and from the professors and such other persons, being persons giving instruction within the University and superior officers within the University, as may be prescribed by the by-laws;

(c) one person, being a member of the staff of the University ineligible for election pursuant to paragraph (b), so elected by and from such members of the staff of the University as may be prescribed by the by-laws; and

(d) three persons so elected by the members of the Council for the time being referred to in subsections (3), (4), (5), (6) and paragraphs (a), (b) and (c).

(8) Where a person (not being a person who is a member of the Council) is appointed at any time by the Council to act in the place of the Vice-Chancellor, that person shall, while so acting, be deemed to be an official member of the Council.

(9) Subject to this Act, a member of the Council shall hold office—

(a) in the case of a parliamentary member, until a member of the House of Parliament that elected him is elected by that House to replace him;

(b) in the case of an official member, while he holds the office by virtue of which he is such a member;

(c) in the case of a nominated member, for such term not exceeding three years as may be prescribed by the by-laws; and

(d) in the case of an elected member, for such term not exceeding three years as may be prescribed by the by-laws.

(10) A retiring member of the Council shall not, by reason of that membership, be disqualified from again becoming a member of the Council.

(11) A casual vacancy shall—

(a) in the case of a nominated member, be filled by such person as the Governor may appoint; and

(b) in the case of an elected member, be filled by a person qualified in accordance with subsection (6) or (7) to be elected to the vacancy concerned in such manner as may be prescribed by the by-laws,

and any member filling a casual vacancy under this subsection shall hold office for the residue of his predecessor's term of office.

(12) A by-law for the purposes of subsection (6) or (7) may be made with respect to—

(a) all persons of a specified class; or

(b) all persons of a specified class other than persons of a specified class or classes.

(13) A by-law for the purposes of subsection (9) (c) and (*d*) may—

(a) prescribe a term of office by reference to determined, or determinable, days of commencement and termination;

(*b*) prescribe different terms of office in respect of the nominated members or the different classes of elected members; and

(c) provide for the retirement in rotation of the nominated members or the different classes of elected members.

Vacation of office.

16. A member of the Council shall be deemed to have vacated his office if he—

(a) dies;

(*b*) in the case of a nominated or elected member, transfers his place of permanent residence to a place that is not within the State or the Australian Capital Territory;

(c) declines to act;

(*d*) resigns his office by writing under his hand addressed—

(i) in the case of the parliamentary member who is a member of the Legislative Council, to the President of the Legislative Council;

(ii) in the case of the parliamentary member who is a member of the Legislative Assembly, to the Speaker of the Legislative Assembly;

(iii) in the case of a nominated member, to the Minister; or

(iv) in the case of an elected member, to the Vice-Chancellor;

(e) is a nominated or elected member who becomes bankrupt, applies to take the benefit of any law for the relief of bankrupt or insolvent debtors, compounds with his creditors or makes any assignment of his estate for their benefit;

(*f*) is a nominated or elected member who becomes a temporary patient or a continued treatment patient, a protected person or an incapable person within the meaning of the Mental Health Act, 1958, or a person under detention under Part VII of that Act;

(*g*) is a nominated member or elected member and absents himself from four consecutive meetings of the Council without leave of the Council;

(*h*) ceases, in the case of the parliamentary member elected by the Legislative Council, to be a member of the Legislative Council;

(*i*) ceases, in the case of the parliamentary member elected by the Legislative Assembly—

(i) to be a member of that Assembly otherwise than by reason of its dissolution or its expiration by effluxion of time; or

(ii) to be a member of that Assembly by reason of its dissolution or its expiration by effluxion of time and is not re-elected as a member of that Assembly at the next general election of members of that Assembly; or

(*j*) being an elected member referred to in section 15 (7) (*b*) or (c), ceases to be an employee of the University.

Election of Chancellor.

17. (1) The Council shall, at its first meeting and whenever a vacancy in the office of Chancellor occurs, elect a person (whether a member of the Council or not) to be Chancellor of the University.

(2) The Chancellor shall hold office for such period not exceeding three years and on such terms and conditions as may be prescribed by the by-laws.

Deputy Chancellor.

18. (1) The Council shall, at its first meeting and whenever a vacancy in the office of Deputy Chancellor occurs, elect one of its members to be Deputy Chancellor of the University.

(2) The Deputy Chancellor shall, unless he sooner ceases to be a member of the Council, hold office for one year from the date of his election and on such conditions as may be prescribed by the by-laws.

(3) In the absence of the Chancellor or during a vacancy in the office of Chancellor or during the inability of the Chancellor to act, the Deputy Chancellor shall have and may exercise and discharge all the powers, authorities, duties and functions of the Chancellor.

Chairman.

19. (1) The Chancellor shall preside at all meetings of the Council and all committees constituted by the Council at which he is present.

(2) At any meeting of the Council or of a committee constituted by the Council at which the Chancellor is not present, the Deputy Chancellor shall preside, and in the absence of both the Chancellor and the Deputy Chancellor, a member elected by the members present from among their number, shall preside.

Appointment of Vice-Chancellor.

20. (1) The first Vice-Chancellor of the University shall be the person who, immediately before the commencement of this Part, was the member of the full-time staff of the College holding office

as Vice-Chancellor designate pursuant to section 6 (1) and he shall, subject to this section, continue in office under the terms and conditions determined under section 5 (c) in relation to his tenure of the office of Vice-Chancellor.

(2) Whenever a vacancy occurs in the office of Vice-Chancellor, the Council shall appoint a person, whether a member of the Council or not, to be Vice-Chancellor.

(3) The Vice-Chancellor (other than the first Vice-Chancellor) shall hold office for such period and on such terms and conditions as the Council determines.

(4) The Vice-Chancellor shall be the chief executive officer of the University and shall have and may exercise and discharge such powers, authorities, duties and functions as may be prescribed by the by-laws and, subject to the by-laws, as the Council determines.

Quorum.

21. At any meeting of the Council one-half (or where one-half is not a whole number the whole number next higher than one-half)of the total number of members for the time being of the Council, shall form a quorum.

Re-appointment or re-election.

22. Nothing contained in this Act shall prevent any person from being immediately, or at any time, re-appointed or re-elected to any office or place under this Act if he is eligible and otherwise qualified, for the time being, to hold that office or place.

Validity of acts and proceedings.

23. (1) No act or proceeding of the Council or any committee of the Council, or of the Vice-Chancellor or any other person acting pursuant to any direction of the Council, shall be invalidated or prejudiced by reason only of the fact that at the time when such act or proceeding was done, taken or commenced there was a vacancy or a number of vacancies in the office or offices of any member or members of the Council.

(2) All acts and proceedings of the Council or any committee of the Council, or of the Vice-Chancellor or any other person acting pursuant to any direction of the Council, shall notwithstanding the subsequent discovery of any defect in the appointment or election of any member of the Council or that any such member was disqualified from acting as or incapable of being a member of the Council, be as valid as if that member had been duly appointed or elected and was qualified to act as or capable of being a member and had acted as a member of the Council and as if the Council had been properly and fully constituted.

Public Service Act not to apply.

24. The provisions of the Public Service Act, 1902, do not apply to and in respect of the appointment of any member of the Council, and a member shall not, as such a member, be subject to the provisions of that Act.

Powers of Council.

25. (1) Subject to this Act and the by-laws, the Council—

(*a*) may provide such courses as it deems fit and in conferring and awarding degrees and diplomas issue such certificates in the nature of degrees, diplomas or otherwise as it thinks fit;

(*b*) may appoint and terminate the appointment of academic and other staff of the University;

(*c*) shall have the control and management of the affairs and concerns of the University and may act in all matters concerning the University in such manner as appears to it best calculated to promote the objects and interests of the University;

(*d*) may acquire by gift, bequest or devise any property for the purposes of this Act and may agree to carry out the conditions of any such gift, bequest or devise;

(*e*) may borrow money for the purpose of carrying out and performing any of its powers, authorities, duties and functions, for the renewal of loans or the discharge or partial discharge of any indebtedness to the Treasurer or to any bank within such limits, to such extent and upon such conditions as to security or otherwise as the Governor upon the recommendation of the Treasurer may approve;

(*f*) may invest any funds belonging to or vested in the University in any manner for the time being authorised for the investment of trust funds or in any manner approved by the Governor, generally or in any particular case or class of cases, upon the recommendation of the Treasurer; and

(*g*) shall have the control and management of all real and personal property at any time vested in or acquired by the the University, and may, subject to subsection (2), dispose of real or personal property in the name and on behalf of the University.

(2) Except as provided in subsection (3) the Council shall not, except with the approval of the Governor, alienate, mortgage, charge or demise any lands of the University.

(3) The Council may, without the approval of the Governor, lease any lands of the University where—

(*a*) the term of the lease does not exceed twenty-one years; and

(*b*) subject to subsection (4) (*b*), there is reserved for the whole of the term, the highest rent that can reasonably be obtained without fine.

(4) In the case of a lease of any lands of the University or any renewal thereof to a residential college affiliated with the University, the lease shall—

(*a*) be for a term not exceeding ninety-nine years;

(*b*) be at a nominal rent; and

(c) contain such other conditions as the University deems fit including a condition that the lease shall not be assigned.

(5) The rule of law against remoteness of vesting does not apply to and in respect of any condition of a gift, bequest or devise to which the University has agreed.

Delegation by Council.

26. (1) The Council may, in relation to any matter or class of matters, or in relation to any activity or function of the University, by resolution, delegate all or any of its powers, authorities, duties and functions under this Act (except this power of delegation) to any member or to any committee of its members, or to any officer or officers of the University.

(2) Every delegation under this section shall be revocable by resolution of the Council, and no delegation shall prevent the exercise of any power, authority, duty or function by the Council.

By-Laws.

27. (1) The Council may make by-laws, not inconsistent with this Act, with respect to all matters pertaining to the University.

(2) Without prejudice to the generality of subsection (1) the Council may make by-laws for or with respect to—

(a) the management, good government, and discipline of the University;

(*b*) the method of election of members of the Council (other than the parliamentary members who are to be elected);

(c) the manner and time of convening, holding and adjourning the meetings of the Council and the manner of voting at such meetings, including postal voting or voting by proxy; the powers and duties of the Chairman thereof; the conduct and record of the business; the appointment of committees of the Council, and the quorum, powers and duties of such committees;

(*d*) the number, stipend, manner of appointment and dismissal of deans, professors, lecturers, examiners and other officers and employees of the University;

(e) the entrance standards for students;

(*f*) the fees and charges to be paid including fees and charges for entrance, tuition, lectures, residence and conferring of degrees and diplomas, and the exemption from, or deferment of, payment of fees and charges;

(*g*) the course of lectures or studies for, the examinations for, and the granting of, degrees, diplomas, certificates and honours and the attendance of candidates therefor;

(*h*) the examinations for, and the granting of, fellowships, scholarships, exhibitions, bursaries and prizes;

(*i*) the admission of students of other universities and institutions of higher education to any status within the University or the granting to graduates of such universities or institutions, or other persons, of a degree or diploma without examination;

(*j*) the establishment of residential colleges and halls of residence within the University and their conduct or the affiliation of residential colleges;

(*k*) the affiliation with the University of any educational or research establishment;

(*l*) the provision of a scheme of superannuation for the professors of the University; and

(*m*) the form and use of academic costume.

(3) Every by-law made by the Council shall be sealed with the common seal of the University and shall be submitted for the approval of the Governor.

Regulations, rules or orders.

28. (1) The by-laws may provide for empowering any authority (including the Council) or officer of the University to make regulations, rules or orders (not inconsistent with this Act or with any by-law) for regulating, or providing for the regulation of, any specified matter (being a matter with respect to which by-laws may be made) or for carrying out or giving effect to the by-laws.

(2) Any regulation, rule or order referred to in subsection (1)—

(*a*) shall have the same force and effect as a by-law;

(*b*) may, from time to time as the occasion requires, be amended or repealed by any authority (including the Council) or officer of the University empowered by subsection (1) to make such a regulation, rule or order; and

(*c*) shall be deemed not to be within the meaning of the term "regulation" as defined in section 41 of the Interpretation Act, 1897.

Convocation.

29. (1) Convocation shall consist of—

(*a*) all members and past members of the Council;

(*b*) all graduates of the University;

(*c*) all members of the full-time academic staff of the University and such other members or classes of members of the staff of the University as the by-laws may prescribe;

(*d*) such graduates of other universities, or other persons, as are, in accordance with the by-laws, admitted as members of Convocation; and

(*e*) without prejudice to the generality of paragraph (*d*), graduates of The University of New South Wales who spent at least three years as properly enrolled students of the College.

(2) The first meeting of Convocation shall be convened by the Vice-Chancellor.

(3) Meetings of Convocation shall be convened and the business at such meetings shall, subject to the by-laws, be as determined by Convocation.

(4) A quorum at any meeting of Convocation shall be such number of members as may be prescribed by the by-laws.

(5) Convocation shall have and may exercise and discharge such powers, authorities, duties and functions as may be prescribed by the by-laws.

(6) The Council may establish a Standing Committee and such other committees of Convocation as it considers necessary.

Treasurer to meet certain costs.

30. (1) There shall be paid to the University in respect of the year commencing upon the first day of January of the year of commencement of this Part and in respect of each succeeding year, such sum as the Treasurer may, upon taking into consideration the University's estimated expenditure requirements and income from all sources which is capable of being applied towards meeting such expenditure requirements, determine.

(2) To enable the Treasurer to exercise and perform the powers and functions conferred upon him by subsection (1) the University shall, in respect of the year commencing upon the first day of January that next preceded the commencement of this Part, as soon as practicable after that commencement, and in respect of each succeeding year either before or as soon as practicable after its commencement, submit to the Treasurer estimates of the expenditure and income of the University for that year and such other information as the Treasurer may deem necessary.

(3) Any moneys payable by the Treasurer under this section shall be paid out of moneys provided by Parliament.

Advance by Treasurer.

31. The Treasurer may for the temporary accommodation of the University advance such moneys to the Council as the Governor may approve upon such terms and conditions as to repayment and interest as may be agreed upon.

Accounts to be rendered.

32. The Council shall cause to be kept proper books of account in relation to the funds of the University and shall, as soon as practicable after the thirty-first day of December in each year, prepare and transmit to the Minister for presentation to Parliament a statement of accounts in a form approved by the Auditor-General exhibiting a true and correct view of the financial position and transactions of the University for the year.

Audit.

33. (1) The accounts of the University shall be audited by the Auditor-General who shall, in respect thereof, have all the powers conferred on the Auditor-General by any law for the time being in force relating to the audit of public accounts.

(2) The provisions of the Audit Act, 1902, apply to and in respect of the members of the Council and to the officers and employees of the University in the same manner as they apply to accounting officers of public departments.

Report of proceedings.

34. (1) As soon as practicable after the first day of January in each year, the Council shall prepare and furnish to the Minister a report upon the proceedings of the University during the period of twelve months immediately preceding that day including a summary of the work, researches and investigations carried out by the University during that period.

(2) A copy of each report under subsection (1) shall be laid before both Houses of Parliament as soon as practicable after it has been received by the Minister.

No religious test or political discrimination.

35. A person shall not, by reason of his religious or political views or beliefs, be denied admission as a student of the University or be ineligible to hold office therein or to graduate thereat or to enjoy any benefit, advantage or privilege thereof.

Visitor.

36. The Governor of New South Wales shall be the Visitor of the University with full authority and jurisdiction to do all such things and entertain such causes as may pertain to or be exercised by visitors as often as he thinks fit.

Teachers' college students and school teachers.

37. (1) The Council shall allow such persons as are—

(a) students of teachers' colleges established under the Public Instruction Act of 1880, teachers in schools established under that Act or members of the Public Service of New South Wales approved by the Minister;

(*b*) qualified in such manner as may be prescribed by the by-laws to be enrolled as students of the University;

(c) selected by the University for admission to the University; and

(*d*) not otherwise excluded from the University,

to attend University lectures for the purpose of proceeding to a first degree and to receive tuition for the period required for admission to that degree without payment of lecture, class or tuition fees.

(2) Nothing in subsection (1) shall exempt any person referred to in that subsection from the payment of such fees, other than lecture, class or tuition fees, as may be approved by the Council.

Provisions relating to Wollongong University College.

38. (1) The College is hereby dissolved.

(2) All real and personal property which immediately before the commencement of this Part was held by or was vested in The University of New South Wales or any other body in trust for, or on behalf of, the College shall, by virtue of this Act, be divested from The University of New South Wales or such other body and shall vest in the University to be applied by the University, subject to any trusts or conditions on which it was held immediately before that commencement, for the objects and purposes for which the University is established.

Transfer by University of New South Wales of certain property to University.

39. (1) This section applies to and in respect of real and personal property, including real and personal property vested in the University pursuant to section 38 (2), which immediately before the commencement of this Part was held by or was vested in The University of New South Wales and used by that University for the purposes of the College.

(2) The Minister shall cause to be constituted a Joint Committee consisting of five members of whom—

(a) one shall be the Auditor-General, or such person as he may nominate, who shall be Chairman and who shall convene, and preside at, all meetings of that Committee;

(*b*) two shall be such persons as are selected by the Council of The University of New South Wales to be representatives of that University; and

(c) two shall be such persons as are selected by the Council to be representatives of the University.

(3) The function of the Joint Committee is to determine as soon as practicable—

(a) what property to which this section applies (other than property vested pursuant to section 38) is to be transferred to the University;

(*b*) what debts and liabilities in respect of property to which this section applies are to be transferred to the University;

(c) the manner in which payments on account of leave or upon the retirement or death of a member of the staff of The University of New South Wales who is transferred to the University pursuant to this Act are to be met and the extent to which those payments should be apportioned between The University of New South Wales and the University;

(*d*) what books, documents, records and papers are to be handed over to the University; and

(e) such other matters relating to the matters referred to in paragraphs (a), (*b*), (c) and (*d*) as that committee deems necessary or expedient.

(4) Where a difference of opinion arises between the members of the Joint Committee representing The University of New South

Wales and the University in respect of a determination of any of the matters referred to in subsection (3) the matter shall be determined in such manner as the Auditor-General or the person nominated by him to represent him on that Committee directs.

(5) Any determination made by the Joint Committee pursuant to subsection (3) shall have effect according to its tenor.

(6) The Chairman of the Joint Committee shall forward or cause to be forwarded to the Minister, The University of New South Wales and the University written notice of any determination it may make with respect to the matters referred to in subsection (3) and each University shall keep a record of that notice.

(7) Upon the receipt of a notice of any determination made by the Joint Committee, The University of New South Wales shall, as soon as practicable, thereafter give effect to the determination.

Persons holding office in the College.

40. (1) In this section a reference to an "officer of the College" is a reference to a person who, immediately before the commencement of this Part, held any salaried office or employment at the College otherwise than as—

(a) a part-time lecturer, tutor or demonstrator;

(b) a temporary senior lecturer, lecturer, senior tutor, tutor, senior demonstrator or demonstrator; or

(c) a staff member employed on a fixed term contract.

(2) Every officer of the College shall become, at the commencement of this Part, an officer and an employee of the University on such terms and conditions (including terms and conditions as to remuneration and duration of appointment), not less favourable than those upon which he was employed at the College immediately before that commencement, as the Council determines.

(3) The Council may, in determining terms and conditions in respect of the title, duties or status attaching to offices or employment at the University, determine in relation to an officer of the College terms and conditions less favourable than those on which the officer of the College was employed immediately before the commencement of this Part.

(4) An officer of the College shall not have any right to damages or compensation in respect of the termination, in consequence of the commencement of this Part, of his tenure of any office or employment at the College but he shall be entitled to enforce or enjoy any right or privilege to which he was, by virtue of section 2 of the University of New South Wales Act, 1968, entitled immediately before that commencement as if the right or privilege had been conferred by this Act.

Amendments.

41. An Act specified in the first column of the Schedule is amended to the extent specified opposite that Act in the second column of the Schedule.

Sec. 41.

Schedule.

First Column.		Second Column.
Year and No. of Act.	Short title.	Extent of amendment.
1916, No. 28.	Superannuation Act, 1916.	Insert in the definition of "Employee" in section 3 (1) after the words "University of New South Wales," the words "or, subject to subsection (5), a professor of The University of Wollongong,". Insert next after section 3 (4) the following new subsection:— (5) (a) Subject to this subsection the exclusion from the definition of "Employee" of a professor of The University of Wollongong shall not extend to a person whose rights as a contributor are continued by section 40 of the University of Wollongong Act, 1972. (b) A professor of The University of Wollongong shall cease to be a contributor if, after the commencement of Part III of the University of Wollongong Act, 1972, he becomes, or continues to be, party to any scheme or arrangement to which that University is also a party and under which he is or may become entitled to any pension or annuity or retiring allowance upon retirement from his professorship. (c) The provisions of subsection (3) shall apply, mutatis mutandis, to professors of The University of Wollongong other than those who are employees by virtue of paragraph (a). Insert at the end of Schedule III the following words:— The University of Wollongong.
1919, No. 41	Local Government Act, 1919.	Insert next after section 132 (1) (fiv) the following new paragraph:— (fv) land which is vested in The University of Wollongong or in a college thereof and is used or occupied by the University or college, as the case may be, solely for the purposes thereof; and
1924, No. 50.	Metropolitan Water, Sewerage, and Drainage Act, 1924.	Insert next after section 88 (1) (f2) the following new paragraph:— (f3) land which is vested in The University of Wollongong or in a college thereof and is used or occupied by the University or college, as the case may be, solely for the purposes thereof.

THE BY-LAW

The University of Wollongong hereby makes the following By-law:—

Part I.

PRELIMINARY.

1. This By-law may be cited as the "University of Wollongong By-law".

2. This By-law is divided into Parts as follows:—

Part I.—PRELIMINARY.

Part II.—ELECTION OF MEMBERS OF THE COUNCIL.

Schedule.

3. (1) In this By-law, unless a contrary intention appears—

"academic staff member" means a member of the Council elected under section 15 (7) (b) of the Act;

"Act" means the University of Wollongong Act, 1972;

"Convocation member" means a member of the Council elected under section 15 (7) (a) of the Act;

"Council" means Council of the University;

"general staff member" means the member of the Council elected under section 15 (7) (c) of the Act;

"student member" means a member of the Council elected under section 15 (6) of the Act;

"University" means The University of Wollongong.

(2) In this By-law, unless a contrary intention appears, a reference to an authority, officer or office shall be construed as a reference to that authority, officer or office in and of the University.

Part II.

ELECTION OF MEMBERS OF THE COUNCIL.

4. (1) For the purposes of section 15 (6) of the Act the student members shall comprise two persons who are qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of Students) containing the names and last known addresses of persons who are enrolled as candidates proceeding to a degree or diploma in the University (other than persons so enrolled who are members of the full-time staff of the University).

(3) The persons qualified to be elected are those persons whose names appear on the Roll of Students at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.

(4) The persons entitled to vote are those persons whose names appear on the Roll of Students at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election conducted under this clause.

5. (1) For the purposes of section 15 (7) (a) of the Act the Convocation members shall comprise three persons who are qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a list for the purposes of section 15 (7) (a) of the Act (in this By-law referred to as the Roll of Convocation) containing the names and last known addresses of the members of Convocation.

(3) The persons qualified to be elected are persons other than full-time members of the staff of the University.

(4) The persons entitled to vote are those persons whose names appear on the Roll of Convocation at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election conducted under this clause.

6. (1) For the purposes of section 15 (7) (b) of the Act the academic staff members shall comprise four persons who are qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of Academic Staff) containing the names and last known addresses of—

(a) professors within the University;

(*b*) persons holding the positions of associate professor, reader, senior lecturer, lecturer, senior tutor, senior demonstrator, tutor, demonstrator, tutor/demonstrator and teaching fellow within the University and such other positions within the University as may be specified in regulations made by the Council for the purposes of this paragraph; and

(c) officers holding the positions of Registrar, Bursar, University Librarian and Estate Manager within the University and such other positions within the University as may be specified in regulations made by the Council for the purposes of this paragraph.

(3) Subject to section 15 (7) (b) of the Act, the persons qualified to be elected are those persons whose names appear on the Roll of Academic Staff at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.

(4) The persons entitled to vote are those persons whose names appear on the Roll of Acadmeic Staff at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election under this clause.

7. (1) For the purposes of section 15 (7) (c) of the Act the general staff member shall comprise a person who is qualified and elected in accordance with this clause.

(2) The Returning Officer shall keep a roll (in this By-law referred to as the Roll of General Staff) containing the names and last known addresses of the full-time staff of the University who are ineligible for election pursuant to section 15 (7) (b) of the Act.

(3) The persons qualified to be elected are those persons whose names appear on the Roll of General Staff at the date and time prescribed pursuant to paragraph 8 of the Schedule for the close of nominations.

(4) The persons entitled to vote are those persons whose names appear on the Roll of General Staff at the date and time prescribed pursuant to paragraph 15 of the Schedule for the receipt of completed voting papers.

(5) The provisions of the Schedule apply to an election conducted under this clause.

8. (1) For the purposes of section 15 (7) (d) of the Act the members elected by the Council shall comprise three persons elected in accordance with this clause.

(2) The election shall be held at a meeting convened by the Returning Officer of those members of the Council who are entitled, pursuant to section 15 (7) (d) of the Act, to vote.

(3) The Returning Officer shall post or deliver to each such member at least ten days before the day of the meeting a notice that the election is to be held.

(4) The notice of election referred to in paragraph (3) shall state—

(*a*) the number of members to be elected; and

(*b*) the date, time and place of the meeting.

(5) The election shall be effected in such manner as may be determined at the meeting.

9. (1) For the purposes of section 15 (11) (b) of the Act the prescribed manner for filling a casual vacancy is, subject to subclause (2), the same manner as that in which the person whose seat is vacant was elected.

(2) In the event of a casual vacancy in the office of any member of the Council (other than a member elected under section 15 (7) (d) of the Act) occurring within less than one year of the date on which the member's term of office would have expired, such vacancy shall be filled by some person qualified to hold that office appointed by the Council in the place of that member.

10. (1) An election conducted under this Part shall not be invalid by reason only of the omission of the name of a person who is qualified to be elected or eligible to vote at that election from the Roll of Students, Roll of Convocation, Roll of Academic Staff or Roll of General Staff, as the case may be.

(2) A person who is entitled to be enrolled on a roll or list kept under this Part may inspect that roll or list during the time that the office of the Registrar is open.

11. (1) For the purposes of section 15 (9) (c) of the Act the term of office of a nominated member is three years.

(2) For the purposes of section 15 (9) (d) of the Act—

(a) the term of office of an elected member (other than a student member) is three years; and

(*b*) the term of office of a student member is two years.

Schedule.

1. The election shall be conducted by the Returning Officer.

2. The Returning Officer shall be the Registrar.

3. In the performance of any of his powers or duties under this By-law, the Returning Officer may be assisted by such persons as he appoints.

4. Subject to this By-law, the election shall be effected in such manner as the Returning Officer determines.

5. In the conduct of the election of student members, academic staff members, and the general staff member, the following intervals shall be allowed:—

(*a*) Between the date of publication or display of the notice of election and the date and time for close of nominations—not less than fourteen and not more than twenty-eight days;

(*b*) Between the close of nominations and the despatch of voting papers—not more than fourteen days; and

(*c*) Between the despatch of voting papers and the date and time by which completed voting papers must be returned to the Returning Officer—not less than fourteen and not more than twenty-eight days.

6. In the conduct of the election of Convocation members, the following intervals shall be allowed:—

(*a*) Between the date of publication of the notice of election and the date and time for close of nominations—not less than fourteen and not more than twenty-eight days;

(*b*) Between the close of nominations and the despatch of voting papers—not more than twenty-eight days; and

(*c*) Between the despatch of voting papers and the date and time by which completed voting papers must be returned to the Returning Officer—not less than fourteen and not more than sixty days.

7. The Returning Officer shall give notice of the election—

(*a*) in the case of the election of the academic staff members or the general staff member—by displaying the notice on a notice board at the University; and

(*b*) in the case of the election of the student members and the Convocation members—by publishing the notice at least once in a newspaper circulating within the Wollongong district and the State.

8. The notice of election shall—

(*a*) state the number of persons to be elected and the qualifications for candidature;

(*b*) specify the form of the nomination; and

(*c*) prescribe a date and time by which nominations must reach the Returning Officer.

9. The Returning Officer shall not accept a nomination unless—

(*a*) it is in writing in the form specified in the notice of election;

(*b*) it is signed by two persons who are eligible to vote at the election for which the candidate is nominated;

(*c*) the person nominated has consented to stand for election by a notice in writing given to the Returning Officer before the time prescribed for the close of nominations or by a notation to that effect on the nomination form; and

(*d*) it is received by the Returning Officer before the time prescribed for the close of nominations.

10. If, following the close of nominations, the number of accepted nominations does not exceed the number of persons to be elected, the Returning Officer shall declare the persons nominated to be elected.

11. If, following the close of nominations, the number of accepted nominations exceeds the number of persons to be elected, the Returning Officer shall send by post or by other means a voting paper to those persons entitled to vote at the address shown in respect of those persons on the Roll of Students, Roll of Convocation, Roll of Academic Staff or the Roll of General Staff, as the case may be.

12. Each voting paper shall contain the names of the candidates in alphabetical order and shall be initialled by the Returning Officer or his deputy.

13. Each voting paper shall be accompanied by a form of declaration that the person so voting is qualified to vote at the election and by two envelopes, one marked "voting paper" and the other addressed to the Returning Officer.

14. Where a voting paper has been lost or destroyed, a duplicate may be issued by the Returning Officer upon receipt of a written declaration that the voting paper has been lost or destroyed.

15. With each voting paper sent in accordance with paragraph 11, there shall be sent a notice which—

(*a*) specifies the date and time by which the completed voting paper must reach the Returning Officer;

(*b*) contains instructions for the transmission of the completed voting paper to the Returning Officer; and

(*c*) states the date and time on which the votes will be counted.

16. The voter shall mark his voting paper by making a cross opposite the name of each candidate for whom he votes, but the number of candidates for whom a vote is cast shall not exceed the number of persons to be elected.

17. At the date and time appointed for the counting of votes, the Returning Officer or his deputy shall—

(a) open the outer envelope;

(b) if he is satisfied that the form of declaration has been properly completed, place the envelope marked "voting paper" with other similar envelopes;

(c) following the opening of all of the outer envelopes, open the envelopes marked "voting paper" and count the number of votes given to each candidate.

18. A voting paper received by the Returning Officer after the close of the poll shall not be taken into account at the election.

19. The Returning Officer shall reject as informal any voting paper in which the voter has not complied with the provisions of this Schedule.

20. Where an election is held to elect one member, the Returning Officer shall declare as elected the candidate who receives the highest number of votes.

21. Where an election is held to elect more than one member, the Returning Officer shall declare as elected the persons who receive the highest number of votes.

22. Where there is an equality of votes, the person to be elected shall be determined by lot by the Returning Officer.

23. For the purpose of paragraph 22, "determined by lot" means determination in the following manner:—

The name of each candidate shall be written on separate and similar slips of paper and the slips having been folded so as to prevent identification and mixed and drawn at random, the candidate whose name is first drawn shall be the elected candidate.

24. Each candidate shall be entitled to nominate a scrutineer to be present at the counting of votes and any determination by lot.

25. The voting papers in an election shall be kept in safe custody by the Returning Officer for at least four months after the election and may be destroyed at any time thereafter with the approval of the Council.

THE UNIVERSITY OF WOLLONGONG

VISITOR

His Excellency the Governor of New South Wales

CHANCELLOR

The Honourable Mr. Justice Robert Marsden Hope, LLB *Syd.*

DEPUTY CHANCELLOR

David Edwin Parry, BE *Syd.*

VICE-CHANCELLOR

Emeritus Professor Lindsay Michael Birt, BAgrSc BSc PhD *Melb.*, DPhil *Oxon.*

THE COUNCIL

ELECTED BY THE LEGISLATIVE COUNCIL

The Honourable Max Frederick Willis, ED, LLB *Syd.*

ELECTED BY THE LEGISLATIVE ASSEMBLY

Peter Coleman, BA *Syd.*, MSc(Econ) *Lond.*

NOMINATED BY THE MINISTER FOR EDUCATION

Edgar Beale
Brian Somerville Gillett, BA DipEd *Syd.*
David Edwin Parry, BE *Syd.*
Walter Pike, MA *Lond.*

EX OFFICIO

The Chancellor
The Vice-Chancellor

ELECTED BY THE STUDENTS OF THE UNIVERSITY

Robert James Pedersen
Robyn Lea Rowland, BA *N.S.W.*

ELECTED BY CONVOCATION

William Barton Burgess, ASTC(Met), BrI&SInst, AIMM, InstM
William Edward Parnell, BA BCom *N.S.W.*
Wilfred George Petersen, MLA (N.S.W.)

ELECTED BY THE FULL-TIME ACADEMIC STAFF OF THE UNIVERSITY

Three members elected by the Professors

Professor Stephen Craig Hill, BSc *Syd.*, PhD *Melb.*

Professor John Bede Ryan, MCom *Auck.*, AASA, ACA CMA (N.Z.), ACIS

Professor Brian Hartley Smith, BE PhD *Adel.*, CEng, MIEE, FIEE(Aust)

One member elected by staff other than the Professors

Associate Professor James Seymour Hagan, BA DipEd *Syd.*, PhD *A.N.U.*

ELECTED BY THE FULL-TIME GENERAL STAFF OF THE UNIVERSITY

Colin John Lambert

ELECTED BY MEMBERS OF THE COUNCIL

The Honourable Reginald Francis Xavier Connor, MHR

Professor Frank John Fenner, MBE, MD *Adel.*, DTM *Syd.*, HonMD *Monash*, FRS, FAA, FRACP, FRCP(Lond.)

Ross Ainsworth Hohnen, OBE, BEc *Syd.*

THE ACADEMIC SENATE

EX OFFICIO

The Vice-Chancellor

MEMBERS ELECTED BY THE PROFESSORS OF THE UNIVERSITY

Two-Year Term

Professor A. D. Brown, Department of Biology

Professor A. C. Cook, CHAIRMAN OF SENATE, Department of Geology

Professor P. Fisher, Department of Physics

Professor A. Keane, Department of Mathematics

One-Year Term

Professor G. Brinson, Department of Metallurgy

Professor R. B. Leal, Department of French

Professor M. G. A. Wilson, Department of Geography

MEMBERS ELECTED BY THE STUDENTS OF THE UNIVERSITY

Two-Year Term

Mr. G. Mitchell

Mrs. J. A. E. Symes

One-Year Term

Mr. R. J. Pedersen

MEMBERS ELECTED BY THE MEMBERS OF THE ACADEMIC ASSEMBLY

Two-Year Term

Dr. G. Doherty, Department of Mathematics
Dr. F. M. Hall, Department of Chemistry
Dr. B. J. Opie, Department of English
Associate Professor E. R. Phillips, Department of Geology

One-Year Term

Associate Professor W. H. Charlton, Department of Electrical Engineering
Mr. J. R. Panter, Department of History and Philosophy of Science
Mr. J. C. Steinke, Department of Economics
Associate Professor R. W. Upfold, Department of Civil Engineering

FULL TIME STAFF

Vice-Chancellor

L. M. Birt (Emeritus Professor, Australian National University), BAgrSc BSc PhD *Melb.*, DPhil *Oxon.*

FACULTY OF ENGINEERING

CHAIRMAN OF FACULTY

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Department of Civil Engineering

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D. Pearson-Kirk, BSc *St. And.*, MSc PhD *Leeds*, CEng, MICE, FGS, MASCE, MIHE, MIEAust

Department of Electrical Engineering

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R. T. Wheway, BE PhD *N.S.W.*, MIEAust, MAWWA

LECTURER

G. J. Montagner, BE *N.S.W.*, GradIEAust, GradAIEA

Department of Metallurgy

DEPARTMENTAL CHAIRMAN AND PROFESSOR

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LECTURERS

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G. W. Delamore, BSc PhD *Birm.*
D. P. Dunne, BSc PhD *N.S.W.*, AIM
N. Salasoo, BSc *N.S.W.*, MS *Pitt.*, ASTC, AMAusIMM

TUTOR

B. J. Collins, BSc *N.S.W.*

PROFESSIONAL OFFICER

A. S. Pearce, MAppSci *Adel.*

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Dorothy L. M. Jones, MA *N.Z.* and *Adel.*, BLitt *Oxon.*

LECTURERS
P. G. Abotomey, BA DipEd *W.Aust.*
B. J. Opie, MA *Well.*, PhD *Edin.*

SENIOR TUTOR
vacant

TUTORS
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G. J. Hayes, BA DipEd *N'cle (N.S.W.)*
Dianne K. Host, BA *Syd.*

Department of French

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C. P. Kiernan, MA *Cantab.* and *Melb.*, PhD *N.S.W.*

SENIOR LECTURER

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LECTURERS

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F. S. Piggin, BA DipEd *Syd.*, PhD A.K.C. *Lond.*

TUTORS

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Department of History and Philosophy of Science

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LECTURERS

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CHAIRMAN OF FACULTY

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ASSOCIATE PROFESSOR

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K. P. Tognetti, BE MEngSc *N.S.W.*, FACS, MORSA

LECTURERS

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C. M. Gulati, MA *Delhi*, MS *New Mexico State*, PhD *Carnegie Mellon*

J. M. Hill, BSc PhD *Qld.*

P. G. Laird, MSc *Well.*, and *A.N.U.*, PhD *Calg.*

A. G. Morris, BSc *N'cle*, PhD *N.S.W.*, MACS

R. V. Nillsen, BSc *Tas.*, MSc PhD *Flin.*

P. Pentony, BSc PhD *A.N.U.*

SENIOR TUTORS

R. F. Hille, DiplPhys *T.U. (Braunschweig)*, PhD *James Cook*, DIC

F. P. Prokop, BS MA *Detroit*

TUTORS

P. T. Castle, MSc *N.S.W.*

Annette L. Worthy, BSc *N.S.W.*

FACULTY OF SCIENCE

CHAIRMAN OF FACULTY

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LECTURERS

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R. McC. Lilley, BSc *Adel.*, PhD *Flin.*

SENIOR TUTOR

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Department of Chemistry

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E. Gellert, DrPhil *Basle*, FRACI

SENIOR LECTURERS

J. Ellis, BSc *Syd.*, PhD *N.S.W.*, ARACI
F. M. Hall, MSc PhD *N.S.W.*, ASTC, ARACI
E. Kokot, BSc PhD *N.S.W.*, ASTC, ARACI

LECTURERS

P. G. Burton, BSc PhD *Monash*, ARACI
W. K. Hannan, MSc *Syd.*
G. M. Mockler, BSc PhD *N.S.W.*, ARACI
R. Rudzats, MSc PhD *N.S.W.*, ASTC, ARACI, ARIC

TEACHING FELLOW

J. A. Land, BSc *N.S.W.*

PROFESSIONAL OFFICER

J. Korth, BSc *N.S.W.*

Department of Geology

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PROFESSOR OF GEOLOGY
A. C. Cook, MA PhD *Cantab.*

SENIOR LECTURER
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LECTURERS
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B. G. Jones, MSc *Auck.*, PhD *A.N.U.*

SENIOR TUTOR
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TUTOR
P. F. Carr, BSc *Qld.*

Department of Physics

DEPARTMENTAL CHAIRMAN AND PROFESSOR
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J. N. Stephens, MA *Cantab.*, PhD *N.S.W.*, AMInstF, AInstP, AAIP, IOMEPS, CEng, FRAS

LECTURERS
K. J. Duff, MSc *Qld.*, MA PhD *Calif.*, MAPS
J. N. Mathur, MSc *Alig.*, DrRerNat *Kiel*, AAIP, IMEPS, MDPG
A. I. Segal, BSc *Melb.*, GradAIP

TUTORS
N. L. Montgomery, BSc *N.S.W.*
G. K. G. Moore, BSc *N.S.W.*, GradAIP

FACULTY OF SOCIAL SCIENCES

CHAIRMAN OF FACULTY

Professor S. C. Hill, BSc *Syd.*, PhD *Melb.*

Department of Accountancy

DEPARTMENTAL CHAIRMAN AND PROFESSOR

J. B. Ryan, MCom *Auck.*, AASA, ACA CMA (N.Z.), ACIS

SENIOR LECTURER

C. T. Heazlewood, BCom DipEd *Melb.*, MEc *Monash*, AASA (Senior), AFAIM

LECTURERS

B. H. Andrew, BCom *N'cle.*, AASA, ATIA
R. K. Wilson, BCom *N.S.W.*

TUTORS

A. J. Anderson, BCom *N.S.W.*
G. A. Ewin, AASA
G. A. Lambert

Department of Economics

DEPARTMENTAL CHAIRMAN AND PROFESSOR

K. A. Blakey, BA *N.Z.*, MSc *Lond.*, MCom *Melb.*, DPhil *Oxon.*

SENIOR LECTURER

J. C. Steinke, MA *Calif.*

LECTURERS

S. Ali, MCom *Melb.*, DEc *Hasanuddin*
R. G. Castle, MEc *Syd.*
J. Irving, BA *N.S.W.*
A. M. McGregor, BAgEc *N.E.*, M.S., *Cornell*
A. J. S. Partridge, BAgEc *N.E.*

TUTORS

P. V. George, MA *Kerala*
S. C. Mares, BEc *Prague*
M. J. Ross, BA *N.S.W.*

Department of Education

DEPARTMENTAL CHAIRMAN AND PROFESSOR

R. C. King, BCom BEd DipEd *Melb.*, PhD *Monash*, MAPsS

SENIOR LECTURERS

P. R. de Lacey, BSc *N.S.W.*, MA *Auck.*, PhD *N.E.*, MAPsS, MACE

A. J. Fielding, BSc *N.S.W.*, MEd EdD *N.Y.State*, MAIP

LECTURERS

Jennifer M. Jones, BEd *Qld.*, MA *Vic. B.C.*

Vacant

TUTOR

I. M. Southall, BA *Keele*, MSocStud *The Hague*, DipEd *N.S.W.*

Department of Geography

DEPARTMENTAL CHAIRMAN AND PROFESSOR

M. G. A. Wilson, MA *N.Z.* and *Wisconsin*, PhD *Melb.*

SENIOR LECTURER

R. Robinson, BA *N.E.*, MA DipEd *N.S.W.*, PhD *Br.Col.*

LECTURERS

E. Dayal, MA PhD *Delhi*

I. Eliot, BA *W.Aust.*, PhD *A.N.U.*

C. L. Keys, MA *Auck.*, PhD *Alta.*

R. W. Young, MA DipEd PhD *Syd.*

Department of Psychology

DEPARTMENTAL CHAIRMAN AND PROFESSOR

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SENIOR LECTURER

J. L. Morris, BA BCom DipEd DipPsych *Melb.*, EdD *Calif.*, MAPsS, MACE

LECTURERS

N. L. Adams, BSc PhD *N.S.W.*, MAPsS

D. D. Diespecker, BA PhD *N'cle (N.S.W.)*, MAPsS

S. Ginsberg, BS MA *C.C.N.Y.*, PhD *Wat.*, MAPsS, MAPsA

Beverly M. Walker, BA PhD *Syd.*

TUTORS
Evelyn J. Evans, BA *N.S.W.*
J. M. Freestone, BA *N.S.W.*

Department of Sociology

DEPARTMENTAL CHAIRMAN AND PROFESSOR
S. C. Hill, BSc *Syd.*, PhD *Melb.*

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C. R. Horne, BA *Syd.*, MA *N.S.W.*

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SECRETARY TO THE VICE-CHANCELLOR
Mrs. Yvonne N. Watkin

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Mrs. Monica Manton, BA *Melb.*

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D. J. Dillon-Smith, MA *DipEd* Syd.

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INFORMATION OFFICER
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BURSAR
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COMPUTER MANAGER
G. A. Hamer, MA *Cantab.*

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Student Services
K. E. Turnbull, BA *N.E.*

Central Services

Secretariat & Publications

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Humanities: Lynn M. Edwards, BA DipEd *N.S.W.*
Mathematics: T. A. Cuthbertson, BA *Syd.*, ThL
Science: B. Natalenko, BA *N.S.W.*
Social Sciences: T. A. Cuthbertson, BA *Syd.*, ThL

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GRADUATE ASSISTANT
Mrs. Patricia E. Mirabito, BA DipEd *Syd.*

UNION

SECRETARY/MANAGER
I. L. Dunn, LLB *Lond.*, psa, pfc

UNIVERSITY LIBRARY

All staff and students are encouraged to use the University Library and material can be borrowed by using a student card or a staff library card. Fines are levied for late return of books.

The Library has the responsibility of providing material for all courses in the University curriculum and carries information in books, periodicals, other non-book and archival materials. It has a growing reference collection and endeavours to provide for needs outside curricular and research requirements.

Since the completion of Stage II of the Library complex in 1975, the Library can now accommodate 250,000 volumes and over 600 readers.

Hours of opening are usually 9 a.m.-10 p.m. Monday to Friday and 9 a.m.-5 p.m. on Saturday. Variations in hours are displayed on notice boards in the Library.

The Library is presently used by many people from outside the University campus, particularly qualified personnel from local commerce and industry.

UNIVERSITY UNION

The Union, which provides opportunities for the development of social and intellectual intercourse between members, is housed in buildings near the main entrance at the south-east corner of the campus. It was opened in 1965; Stage II additions were added in 1970; and Stage III will be completed early in 1976. By that time most of the physical facilities normally associated with University Union buildings will have been provided. They include an auditorium, new kitchens, a cafeteria, a coffee bar, a take-away food service, a licensed bar, a licensed restaurant, two squash courts, ample circulating space, some five common rooms and meeting rooms, new administrative offices, a Union shop and branches of the Commercial Banking Company of Sydney Limited and the University Co-operative Bookshop Limited.

Membership is compulsory for all students; staff may elect to become members. The affairs of the Union are controlled by a Board of Management and, in day to day matters, by its executive officer, the Secretary/Manager.

The following clubs and societies are affiliated to, and supported by, the Union:—

Drama Society
Camera Club
Commerce Society
Film Group
Geological Society
History Society
Musical Society

STUDENTS' REPRESENTATIVE COUNCIL

The Students' Representative Council is a body elected by the students to promote and protect student welfare and interests. It provides a channel through which students can express their views on almost any matter relevant to the University.

The S.R.C. organizes dances, cabarets, balls and other social functions. It also takes an active interest in community, state and federal affairs on a wide variety of issues. Several clubs and societies are sponsored by the S.R.C. for open student involvement. It works in close co-operation with the University Union and the Sports Association, but it is a distinct autonomous body.

As a constituent member of the Australian Union of Students (A.U.S.) the S.R.C. offers travel and health schemes, National U (Student Paper), a means of keeping in touch with other universities and participation in the active Australian student lobby.

"Tertangala", the Journal of the University of Wollongong Students' Representative Council is published throughout the year. Students are invited to participate in its publication and to submit items for it.

SPORTS ASSOCIATION

All students pay a compulsory fee which automatically makes them members of the Sports Association. Membership is also open to employees of the University on payment of the same fee as students. Membership entitlements include the use of the recreational facilities provided by the Sports Association. Members may also join one or other of the constituent clubs of the Association at a small extra subscription.

The Sports Association aims to provide physical recreation facilities of an opportunity-type for individuals or small groups. In addition, it aims to ensure that its constituent clubs are provided with adequate playing surfaces and associated equipment, that adequate funds are available to subsidise travelling, and that both clubs and individuals are encouraged to attain higher sporting standards through competition under the auspices of local associations and through intervarsity competitions, representative matches and championships organised by the Australian Universities Sports Association.

A new multi-purpose sports pavilion will be available in 1976. Enlargements and improvements to existing playing fields are being undertaken, and plans for an indoor recreation centre are being considered.

The constituent clubs of the Sports Association are as follows. Enquiries in respect of them should be made at the Union Office:-

Australian National Football	Outdoors
Badminton	Rugby League
Basketball	Rugby Union
Cricket	Soccer
Fencing	Squash
Hockey (men)	Table Tennis
Women's Hockey	Tennis

CHAPLAINCY SERVICE

A Chaplaincy Service is provided within the University for the benefit of students and staff by five Christian Churches.

The Service offers fellowship, personal counselling and guidance, and leadership in biblical and doctrinal studies and in worship. The Chaplains maintain close liaison with student religious societies. The Chaplains may be contacted at their private addresses or through the Registrar.

Anglican:	The Curate, The Curate's Cottage, Market Street, Wollongong 2500. Tel. 29 1167.
Baptist:	Rev. Randolph Leckie, 216 Jacaranda Avenue, Figtree Heights 2525. Tel. 29 1671.
Methodist:	Rev. L. L. Arthur, 36 Fisher Street, West Wollongong 2500. Tel. 29 2119.
Presbyterian:	Rev. D. R. Parker, 2 Lachlan Street, Thirroul 2515. Tel. 67 1444.
Roman Catholic:	Rev. Father T. Fox, The Presbytery, Cabbage Tree Lane, Fairy Meadow 2519. Tel. 29 4133.

ACCOMMODATION

The Student Accommodation Service, located in the Hut (tennis court end) handles a variety of non-residential accommodation e.g. board (both 7 and 5 day), single rooms, flats and houses. Enquiries should be made as early as possible in the year by calling in, or phoning 29 7311, extension 355.

International House

Warden: T. A. Lambert, ThB, PhD, CHC, JP

Assistant Warden: Rosalind L. Baynes, DipTL, JP

International House is the only residential College at Wollongong affiliated with the University. It is situated between the University and the North Wollongong beaches on the Princes Highway at its junction with the Wollongong "By-Pass".

The College is operated as a co-educational non-denominational College by the Council of International House, and is owned by the YMCA of Wollongong. The College philosophy attempts to build a community which combines the best features of the older traditional Colleges with a more modern approach to corporate life. International House holds to a strong belief in the contribution that the individual may make to his community in an atmosphere which will enrich his experience of learning within the University. As indicated by its title the College provides a place of living for overseas students, thus providing for a meeting place of varying cultures.

The College presently provides for 212 graduate and undergradute students and 10 tutors.

The resident students, both male and female, are housed in five three-level residential blocks. Facilities include a large common room, dining room, tutorial rooms, music and television rooms, laundry, students' kiosk and a large multi-purpose recreational hall for student functions, films, etc.

Academic Tutorials are available to residents and are organised by the Academic Counsellor, Professor C. Kiernan. The Student Counsellor, Mr. J. McLellan, is available to help students, and as Personal Counsellor visits the College on a regular basis.

To cater for the large number of students who live close to Wollongong and who return home for weekends the cost of meals is not charged in students' fees. Meals may be purchased in the Dining Room as required.

For further information, contact the Warden, International House, P.O. Box 1799, Wollongong 2500. Tel. 29 9015.

EMPLOYMENT

The Student Employment Service, run in conjunction with the Commonwealth Employment Service, is located in the Hut (tennis court end). The Service provides casual and part-time work throughout the year, plus vacation work. Information on jobs is displayed on two boards: one in the hut, the other in the dining room of the Union.

All enquiries concerning casual, part time and vacation work should be directed to the Student Employment Service, phone 29 7311, extension 355.

COUNSELLING SERVICE

The University Counsellors are available to assist any member of the University, staff and students, in any problem situation which is interfering with his or her full development as a person. Individual counselling is available where the individual feels distressed or unable to resolve a difficulty alone.

These difficulties may involve feelings: anxiety, confusion, depression, they may be to do with interpersonal relationships; they may involve university life—lack of motivation, inability to study effectively, anxiety in exams, uncertainty about course-choice or career-goals. In all these, counselling aims to help the person to an understanding of the problem, allowing the person to use their capacity for effective action to overcome the difficulty.

The Counselling Centre offers other personal development oriented services:

- group workshops in communication skills and human relationships
- study method workshops
- career planning seminars
- reading effectiveness improvement laboratories
- careers information

The Counselling Centre is in the white hut (Building 9) *near the tennis courts.* Any person may make an appointment to see a Counsellor. The telephone number is 29 7311, extension 355. All discussions with the Counsellor are confidential.

General Information

ADMISSION AND MATRICULATION

1. General Provisions

1.1 All candidates for a degree of the University shall:

1.1.1 either (a) have matriculated to the University and have lodged an Application for Admission form, or

(b) applied for admission to the University under the special provisions in these regulations;

1.1.2 have been selected for a degree course; and

1.1.3 have satisfied pre-requisites approved by the Academic Senate for a subject before enrolment in that subject.

1.2 Should the number of qualified persons seeking enrolment in any degree, or subject, exceed the number of places available, the Council may limit the number of students enrolling in a particular degree, or subject. In this event candidates would be required to be selected for the degree or subject for which limitations had been imposed.

2. Matriculation

2.1 A person who obtains at an examination approved by the Academic Senate a level of performance determined by the Academic Senate from time to time shall be matriculated to the University; provided that the Academic Senate may grant matriculation to a candidate who has:

2.1.1 matriculated to any Australian university;

2.1.2 matriculated to any university outside Australia approved by the Academic Senate;

2.1.3 graduated from any university approved by the Academic Senate;

2.1.4 submitted evidence acceptable to the Academic Senate of a satisfactory level of performance in the sixth form of a school in New South Wales, or its equivalent in other states of Australia.

3. Examinations Approved by the Academic Senate

3.1 Examinations approved by the Academic Senate in accordance with 2.1 above are:

3.1.1 The New South Wales Higher School Certificate examination, provided that the rules of the examination relating to the presentation of subjects as determined by the New South Wales Board of Senior School Studies have been complied with; and

3.1.2 The University of Sydney Matriculation Examination.

4. New South Wales Higher School Certificate Examination

4.1 The following subjects, and any other subjects approved by the Academic Senate, shall be recognised subjects for the purpose of matriculation at the New South Wales Higher School Certificate examination:

English
Mathematics
Science
Agriculture
Modern History
Ancient History
Geography
Economics
Greek
French
Latin
German
Italian
Bahasa Indonesia
Spanish
Russian
Japanese
Chinese
Hebrew
Dutch
Art
Music
Industrial Arts

4.2 A candidate's performance shall be measured by the aggregate of marks, such marks being co-ordinated in a manner approved by the Academic Senate.

4.3 The aggregate of the co-ordinated marks shall include the co-ordinated marks achieved in English and in not more than four other approved matriculation subjects.

4.4 When more than four approved matriculation subjects other than English are presented, the four highest co-ordinated marks from among such other subjects shall be counted.

4.5 For the purposes of clauses 4.3 and 4.4, Mathematics and Science taken singly or together at first level or second level full course shall each count as one and one-half subjects.

5. Special Provisions for Admission

5.1 The Academic Senate may grant a candidate admission to the University where the candidate:

5.1.1 has, since leaving school, satisfactorily completed over a period of not less than two years full-time or three three years part-time, a course of study acceptable to the Academic Senate for this purpose; or

5.1.2 is not less than twenty-one years of age on 1st March of the year for which admission is sought and the Academic Senate is satisfied that he has reasonable prospects of success in university studies; or

5.1.3 although not qualified for admission under clauses 5.1.1 and 5.1.2 above, nevertheless satisfies the Academic Senate that in the special circumstances of his case he has reasonable prospects of success in university studies.

5.2 The Academic Senate, before admitting a candidate under these special provisions, may prescribe certain requirements including the taking of examinations.

5.3 A candidate admitted under these special provisions shall be subject to the Degree Regulations as if he had been a matriculated student.

5.4 A candidate admitted under these special provisions, after being credited with twenty-four credit points or equivalent in subjects passed at this University, may be granted matriculation by the Academic Senate.

5.5 The Council may impose quotas for the number of candidates to be granted admission under each, or any, of the clauses in 5.1 above.

UNDERGRADUATE ENROLMENT AND RE-ENROLMENT

The enrolment procedure in 1976 for the different classes of undergraduate students is as follows:—

First Enrolments

All applications for admission must be lodged with the University *not later than 31st October, 1975*, by *all* applicants.

Applications will be received after the date only if accompanied by a *late fee* of *$10*. Late applications received after 16th January, 1976, will only be considered if places remain after offers have been made to those who applied on time.

Students whose applications for enrolment are accepted will be required to complete their enrolment at a specified time before the start of Session 1. Fees must be paid on the day specified.* However, in special circumstances and provided class places are still available students may be allowed to complete their enrolment after the prescribed date, subject to the payment of a late fee.

Re-enrolments

All students enrolling other than for the first time should re-enrol by attending the University to complete re-enrolment, including the payment of fees, on days prescribed during the week commencing Monday, 23rd February, 1976.

Students who are unable to attend the University to complete re-enrolment on the days prescribed should apply in writing to the Registrar for approval to re-enrol at a later date.

Students who have completed the final examinations but have a thesis still outstanding are required to enrol and pay the requisite fees.

Enrolment must be completed during the prescribed enrolment period. Students who fail to comply with this requirement will incur a late fee of $10. For details of fee requirements, including late fee provisions, see under Fees.

No student is considered to have completed his enrolment until all fees and charges have been paid.

Course Transfers

Students who are currently enrolled at the University and who wish to transfer to another first year course (including Stages I and II of the part-time courses) at the University should submit an "Applica-

* Refer to pp. 65, 66.

tion for Admission" in the same manner as is required of new applicants.

Students wishing to transfer to later years (i.e. excluding the year/stage referred to above) of another course at the University should complete the "Application to Transfer Course" form which is available from the Student Enquiries Section, First Floor, Administration Building, or should make a written application to the Registrar. Such applications for course transfers should be lodged with the Registrar by Friday, 16th January, 1976.

Students whose applications to transfer are successful are required to comply with the enrolment procedures for the year/stage of the **new** course in which they expect to enrol. Unless otherwise instructed they must present the letter granting approval of the transfer to the enrolling officer.

Students who have not received advice regarding their application to transfer before the date on which they are required to enrol should check with the Registrar.

Resumption of Courses

Students who have been granted leave of absence for 1975 should contact the Registrar by 16th January, 1976, for information on enrolment procedures.

All other students seeking to resume their studies after an absence of twelve months or more are required to submit an "Application for Admission" in the same manner as is required of new applicants.

Students re-enrolling in this way will normally be required to satisfy conditions pertaining to the course at the time of re-enrolment. This condition applies also to students who have been re-admitted to a course after exclusion under the rules restricting students re-enrolling.

Miscellaneous Subject Enrolments

Applications from students to enrol for miscellaneous subjects (i.e. as students not proceeding to a degree or diploma) may be considered provided the Chairman of the Department offering the subject considers it will be of benefit to the student and there are facilities available. Only in exceptional cases will subjects taken in this way count towards a degree or diploma. Where a student is under exclusion he may not be enrolled in miscellaneous subjects unless given approval by the Academic Senate.

Application forms can be obtained by written application to the Registrar or from the Student Enquiries Section, First Floor, Administration Building. Application forms should be received by the Registrar by 16th January, 1976.

Final Dates for Completion of Enrolment

No enrolments will be accepted from *new students* after the end of the second week of session 1 (12th March, 1976) except with the express approval of the Registrar and the Departmental Chairman concerned; no **later year enrolments** will be accepted after the end of the fourth week of Session 1 (26th March, 1976) without the express approval of the Registrar which will be given in exceptional circumstances only.

POSTGRADUATE ENROLMENT AND RE-ENROLMENT

Research Degrees

Application forms for registration are obtainable from the Student Enquiries Section, First Floor, Administration Building.

Before lodging an application applicants are advised to contact the appropriate Departmental Chairman to discuss research interests, suitability of qualifications held, and the availability of facilities for research in particular areas.

Courses Requiring Attendance at Formal Lectures

Students wishing to enrol as candidates for postgraduate degrees or diplomas requiring attendance at formal lectures should make application on the appropriate form available from the Student Enquiries Section.

No enrolments will be accepted after 31st March without the express approval of the Registrar, which will be given in exceptional circumstances only.

Students who have completed the final examinations, but have a thesis or project still outstanding, are required to enrol and pay any requisite fees. However, when the student submits his thesis for examination, he will receive a refund of the student fees on the same basis as if he had notified the University of his withdrawal from the course.

Re-enrolment

Enrolment forms will be sent to re-enrolling students at the beginning of the year with instructions concerning re-enrolment procedure.

UNDERGRADUATE FEES*

Students are required to meet the following fees and charges:

1. Penalty charges such as late fees, parking fines, etc.
2. Administrative charges such as "statement of record" fees, "review of result" fees or charges for examinations requiring special arrangements.
3. Cost of travel incurred by students attending practical work for courses in social work, teacher training etc.
4. Cost of travel incurred by external students attending residential schools.
5. Accommodation charges and cost of subsistence on excursions, field work etc.
6. Charges for special clothing or laundry costs.
7. Purchase of instruments or equipment.
8. Cost of handbooks and notes.
9. Fees and charges associated with the development and operation of unions, student associations, students' representative councils and other student activities.
10. Deposits and refundable fees.

Compulsory Fees

All registered undergraduates will be required to pay:

University Union—entrance fee	$22
Sports Association—entrance fee	$ 6
Student Activities Fees:	
University Union—annual subscription	$37
Sports Association—annual subscription	$ 6
Students' Representative Council—annual subscription	$14
Miscellaneous—annual fee	$ 2

SPECIAL EXAMINATION FEES

Deferred examination	$ 8 for each subject
Examinations conducted under special circumstances	$11 for each subject
Review of examination result	$11 for each subject

* All fees listed are current at time of printing.

Late Fees

FIRST ENROLMENTS

Fees paid after the prescribed enrolment period and before commencement of Session 1 ..... $10

Fees paid during the 1st and 2nd weeks of Session 1 ..... $20

Fees paid after the commencement of the 3rd week of Session 1 with the express approval of the Registrar $40

RE-ENROLMENTS

Failure to attend enrolment centre during the prescribed enrolment period $10

Fees paid after the commencement of the 3rd week of Session 1 to 26th March $20

Fees paid after 26th March where accepted with the express approval of the Registrar $40

SESSION 2—ALL ENROLMENTS

Fees paid in 3rd and 4th weeks of Session 2 ..... $20

Fees paid thereafter $40

Withdrawal

1. Students withdrawing from a course are required to notify the Registrar in writing.

2. Where notice of withdrawal from a course is received by the Registrar before the first day of Session 1 a refund of all fees paid will be made.

3. On notice of withdrawal on or after the first day of Session 1 and prior to the end of the fourth week of Session 1, a full refund of student activities fees, other than entrance fees, will be made but thereafter no refund will be made, except as provided for in section 4 below. Student activities fees are listed on the previous page.

4. If a student's initial enrolment in any year is made at the commencement of Session 2 for Session 2 only and the student gives notice of withdrawal prior to the end of the fourth week of Session 2, a full refund of student activities fees, other than entrance fees, will be made but thereafter no refund will be made.

5. Late fees are not refundable.

EXTENSION OF TIME

Any student who is unable to pay fees by the due date may apply on the prescribed form to the Registrar for an extension of time. Such application must state clearly and fully the reasons why payment cannot be made and the extension sought, and must be lodged before the date on which a late fee becomes payable. Normally the maximum extension of time for the payment of fees is until 26th March.

ASSISTED STUDENTS

Scholarship holders or Sponsored Students who have not received an enrolment voucher or appropriate letter of authority from their sponsor at the time when they are enrolling should complete their enrolment paying their own fees. A refund of fees will be made when the enrolment voucher or letter of authority is subsequently lodged with the Cashier.

FAILURE TO PAY FEES

Any student who is indebted to the University and who fails to make a satisfactory settlement of his indebtedness upon receipt of due notice ceases to be entitled to membership and privileges of the University. Such a student is not permitted to register for a further session, to attend classes or examinations, or to be granted any official credentials.

No student is eligible to attend the annual examinations in any subject where any portion of his fees for the year is outstanding after the end of the fourth week of Session 2.

In very special cases the Registrar may grant exemption from the disqualification referred to in the two preceding paragraphs upon receipt of a written statement setting out all relevant circumstances.

CASHIER'S HOURS

The Cashier's office is open for the payment of fees from 9.30 a.m. to 4.30 p.m., Monday to Friday. The Cashier's office may be open for additional periods during the first two weeks of session. Details of these additional times may be obtained from notices posted at the Cashier's Office before the commencement of each session.

POSTGRADUATE FEES*

Postgraduate students are required to meet the fees and charges in the ten categories listed at the beginning of the Undergraduate Fees section.† Students should also consult the Undergraduate Fees section for details of: *Extension of Time; Assisted Students; Failure to Pay Fees* and *Cashier's Hours*.‡

Compulsory Fees

Postgraduate students are required to pay:

University Union§—entrance fee	$22
Sports Association—entrance fee	$ 6
Student Activities Fees:	
University Union§—annual subscription	$37
Sports Association§—annual subscription	$ 6
Students' Representative Council—annual subscription	$14
Miscellaneous—annual fee	$ 2

EXAMINATION FEES

Examinations conducted under special circumstances	$11 for each subject
Review of examination result	$11 for each subject

Research Degree—Special Note

A candidate who at the end of a year has completed all work for the degree other than the writing up of the thesis and who anticipates submitting the thesis to the Registrar for examination during the following year is required to re-enrol for that year and pay the appropriate student fees outlined above. However, when the student submits his thesis for examination he will receive a refund of the student fees on the same basis as if he had notified his withdrawal from the course.

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* All fees listed are current at time of printing.

† Refer p. 65.

‡ Refer p. 67.

§ Life members of these bodies are exempt from the appropriate fee or fees.

Late Fees

SESSION 1

Fees paid from the commencement of 3rd week of the session to 26th March $20

Fees paid after 26th March where accepted with the express approval of the Registrar $40

SESSION 2

Fees paid in 3rd and 4th week of the session $20

Fees paid thereafter $40

INITIAL REGISTRATION—RESEARCH DEGREES

Fees paid from commencement of sixth week after date of offer of registration to end of eighth week $20

Withdrawal

1. Students withdrawing from a course are required to notify the Registrar in writing.

2. Where notice of withdrawal from a course is received by the Registrar before the first day of Session 1 a refund of all fees paid will be made.

3. On notice of withdrawal on or after the first day of Session 1 and prior to the end of the fourth week of Session 1, a full refund of student activities fees, other than entrance fees, will be made but thereafter no refund will be made, except as provided for in section 4 below. Student activities fees are listed on the previous page.

4. If a student's initial enrolment in any year is made at the commencement of Session 2 for Session 2 only and the student gives notice of withdrawal prior to the end of the fourth week of Session 2, a full refund of student activities fees, other than entrance fees, will be made but thereafter no refund will be made.

5. Late fees are not refundable.

UNDERGRADUATE SCHOLARSHIPS

Australian Government Assistance

The Australian Government provides assistance to students by way of the Tertiary Education Assistance Scheme. Details of application procedure and further information is available from the Regional Director, N.S.W. State Office, Department of Education, Central Square, 323 Castlereagh Street, Sydney 2000 (Telephone: 2 0929).

Teacher Education Scholarships

The N.S.W. Department of Education offers scholarships to enable students to undertake studies for a University degree, to be followed by a year of teacher education. Benefits include the payment of living allowances, book allowances and compulsory fees.

Students who have partly completed their courses and graduates are eligible to apply, as are those who have completed secondary education.

Further information is available from the Scholarships Office in Wollongong (P.O. Box 1741, Wollongong; telephone 28 4033), or from the Teacher Education Scholarships Branch, 46 Kippax Street, Surry Hills 2010 (telephone 212 4722).

Applications close on 30th September each year.

POSTGRADUATE SCHOLARSHIPS*

University Postgraduate Scholarships

The University provides each year a number of scholarships for postgraduate study and research in any approved field.

These awards are normally for graduates of Australian Universities who are domiciled in Australia. They are tenable for one year and, subject to satisfactory progress, may be renewed annually to provide a maximum tenure of two years in the case of a scholar registered for the degree of Master. In the case of a scholar registered for the degree of Doctor of Philosophy the award is tenable for up to a maximum of three years, but an extension for one year may be granted if special circumstances apply.

Stipend—Scholars will receive a stipend at the rate of $3,350 (including an allowance of $100 to cover Union, Students' Representative Council and Sports Association fees)* per annum, with a dependants' allowance at the rate of $1144 for dependant wife and first child, and $364 for each other child.

Travel Allowance—In some cases a travel allowance (equivalent to a tourist air fare where appropriate) may be paid for a scholar who is obliged to move from one Australian city to another in order to take up his award. Travel allowance is also payable for dependants.

Establishment Allowance—In some cases an allowance of $150 will be paid to married scholars, and $75 to single scholars, who are entitled to a Travel Allowance. The establishment allowance is intended to assist scholars with removal expenses and with the expenses of setting up new quarters.

Thesis Allowance—In some cases a scholar may claim reimbursement of an amount of up to $250 to assist with PhD thesis costs, and up to $150 for a Master's thesis.

Income Tax—The stipend provided by a scholarship is normally exempt from income tax.

In some cases, scholarship holders may supplement their stipends by undertaking up to a maximum of six hours' teaching or demonstrating weekly, or a total of 180 hours in a calendar year. Opportunities for such work are usually available within the University. It is expected that scholarship holders will not engage in any other form of paid employment, and will be engaged full time on the work for which the scholarship is provided.

Normally a person may not hold more than one postgraduate scholarship.

Applications should be lodged with the Registrar by 31st October each year.

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* Rates quoted are current at time of publication.

Australian Government Postgraduate Research Awards

A number of Australian Government Postgraduate Research Awards are available to students undertaking full-time postgraduate research at the University, leading to the degree of Master and/or PhD.

Persons permanently domiciled in Australia, who are University graduates or will graduate in the current academic year, are eligible for the awards.

Applicants should hold, or expect to obtain, at least an upper division second class honours degree or its equivalent.

Awards are tenable for one year and, subject to satisfactory progress, may be renewed annually to provide a maximum tenure of two years in the case of a scholar registered for the degree of Master. In the case of a scholar registered for the degree of Doctor of Philosophy the award is tenable for up to a maximum of three years, but an extension for one year may be granted if special circumstances apply.

Stipend is $3,250 per annum, with a dependants' allowance at the rate of $1144 for dependent wife and first child, and $364 for each other child. There is provision for Establishment, Travel, Incidentals and Thesis Allowances.

The closing date for applications is 31st October.

Australian Government Postgraduate Course Awards

A number of awards for full-time postgraduate study leading to the degree of Master by formal course-work are also made available by the Australian Government.

Persons permanently domiciled in Australia and who are University graduates or will graduate in the current academic year, are eligible for the awards.

Applicants are expected to have an undergraduate record at better than pass level.

Stipend and allowances are as for Research Awards.

Applications close on 30th September.

Applications and Enquiries

Application forms for Australian Government and University Postgraduate awards are available from the University. Applications should be lodged with the Registrar by the specified date.

Separate application for registration as a higher degree candidate should be made on the appropriate form, in accordance with conditions applying to the particular degree.

Further enquiries may be directed to the Student Enquiries Section.

STUDENT PROCEDURES

General Conduct

Acceptance as a member of the University implies an undertaking on the part of the student to observe the regulations, by-laws and other requirements of the University, in accordance with the declaration signed at the time of the enrolment.

Smoking is not permitted during lectures, in examination rooms or in the University Library. Gambling is also forbidden.

Members of the academic staff of the University, senior administrative officers, and other persons authorised for the purpose, have authority, and it is their duty to check and report on disorderly or improper conduct or any breach of regulations occurring in the University.

Indebtedness to the University

Any student who is indebted to the University and who fails to make a satisfactory settlement of his indebtedness upon receipt of due notice ceases to be entitled to membership and privileges of the University. Such student is not permitted to attend classes or examinations, or to be granted any official credentials.

Indebtedness to the University includes the non-payment of fees, late fees, library fines and the non-repayment of student loans.

In very special cases the Registrar may grant exemption from the disqualification referred to in the preceding paragraph upon receipt of a written statement setting out all the relevant circumstances.

Change of Address

Students are requested to notify the Registrar in writing of any change in their address as soon as possible. Failure to do this could lead to important correspondence or course information not reaching the student. The University cannot accept responsibility if official communications fail to reach a student who has not notified the Registrar of a change of address.

Change of Name by Marriage or Deed Poll

All records held, and statements issued by the University will be in the name given by students at the time of their admission to the University.

Students who change their name by marriage or by Deed Poll and who also wish to change their name on University records should complete a Change of Name form which is available from the Student Enquiries Section, Administration Building, and present for notation the original Marriage Certificate or Deed Poll document.

Ownership of Students' Work

The University reserves the right to retain at its own discretion the original or one copy of any drawings, models, designs, plans and specifications, essays, theses or other work executed by students as part of their courses, or submitted for any award or competition conducted by the University.

Notices

Official University notices are displayed on the notice boards and students are expected to be acquainted with the contents of those announcements which concern them.

Students' Travelling Concession Passes

The various transport authorities provide fare concessions for certain classes of students.

Application forms for these concessions may be obtained from the Student Enquiries Section, First Floor, Administration Building.

Train:

(a) Periodical tickets are available during sessions to full-time students not in employment nor in receipt of any remuneration.

(b) Vacation travel concessions are available to students qualifying under (a) above.

Aircraft:

Concession fares for travel overseas, inter-state and intra-state are available under the conditions ruling for the various operating companies.

Student Identification Cards

All students are issued with a Student Identification Card. This card must be carried during attendance at the University and shown on request.

The number appearing on the front of the card is the student registration number used in the University's records. This number should be quoted in all correspondence.

The card must be presented when borrowing from the Library, when applying for travel concessions and when notifying a change of address. It must also be presented when paying fees on re-enrolment each year when it will be made valid for the year and returned. Failure to present the card could result in some inconvenience in completing re-enrolment.

A student who loses his identification card must notify the Registrar as soon as possible. Forms for this purpose are available from the Student Enquiries Section, First Floor, Administration Building.

New students will be issued with Student Identification Cards as soon as possible after enrolment. In the meantime, the receipt form issued at the time of enrolment should be carried during attendance at the University and shown on request. If the identification card is not received within three weeks of enrolment the Registrar should be notified.

Lost Property

Enquiries concerning lost property should be made to the Student Enquiries Section, First Floor, Administration Building, and the Union Office.

Application of Rules

Any student who requires information on the application of the rules or any service which the University offers, may make enquiries from the Registrar.

FINAL EXAMINATIONS

Final examinations may take place at the end of the first or second session. Timetables showing time and place at which individual examinations will be held are posted on notice boards. Mis-reading of the timetable is not an acceptable excuse for failure to attend an examination. Examination results are posted to the session addresses of students. *No information concerning examinations or results will be given by telephone.*

Examination results may be reviewed for a fee of $11 a subject which is refundable in the event of an error being discovered. Applications for review must be submitted on the appropriate form, together with the necessary fee by the date indicated on the notification of results.

Rules and Procedure for the Conduct of Examinations

(a) Candidates are required to obey any instruction given by an examination supervisor for the proper conduct of the examination.

(b) Candidates are required to be in their places in the examination room not less than ten minutes before the time for commencement.

(c) No bag, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room.

(d) No candidate shall be admitted to an examination after thirty minutes from the time of commencement of the examination.

(e) No candidate shall be permitted to leave the examination room before the expiry of thirty minutes from the time the examination commences.

(f) No candidate shall be re-admitted to the examination room after he has left it unless during the full period of his absence he has been under approved supervision.

(g) A candidate shall not by any improper means obtain, or endeavour to obtain, assistance in his work, give, or endeavour to give, assistance to any other candidate, or commit any breach of good order.

(h) Smoking is not permitted during the course of examinations.

(i) A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination, to immediate expulsion from the examination room, and to such further penalty as may be determined in accordance with the By-Laws.

Deferred Examinations

Most departments at the University do not offer deferred examinations except in medical and compassionate cases.

Terminating Passes

The award of the grade of terminating pass will prohibit a student progressing to the next subject in a sequence for which the subject in which the terminating pass is awarded, is a prerequisite. However, students are not prevented from repeating a subject for which a terminating pass has been awarded.

APPLICATION FOR ADMISSION TO A DEGREE OR DIPLOMA

Applications for admission to a degree or the award of a diploma of the Universtiy must be made on the appropriate form by 9th January. Applicants should ensure that they have completed all requirements for the degree or diploma, including industrial training where necessary.

PRIZES

The Austin Keane Prize

Awarded to the student who most excels in the subject Applied Mathematics III.

1974 J. W. Paine

The S. A. Senior Prize

Awarded to the student who most excels in the subject Pure Mathematics III.

1974 No award made

The Australian Institute of Metals (Port Kembla Branch) Metallurgy Prize

Awarded each year to the graduate who has shown the best general proficiency throughout the full course.

1974 B. J. Smithers

The Peter Beckmann Memorial Prize

Awarded to the student with the best academic record in Chemistry III or in the honours year.

1974 G. Pallister

The G. W. Daniels Memorial Prize

Awarded to the student with the best academic record in second year Chemistry.

1974 Mrs. M. D. Harvey

The Illawarra Group of the Institution of Engineers, Australia, Prizes for Engineering

(1) Awarded to the full-time, final year student proceeding to an undergraduate degree in Engineering with the best academic record.

(2) Awarded to the part-time, final stage student proceeding to an undergraduate degree in Engineering with the best academic record.

1974 (1) A. J. McLean
(2) G. L. Burling
A. J. Thompson

Darryl Condon Memorial Prize

Awarded to the student proceeding to an undergraduate degree in Metallurgy who most excels in Metallurgy I.

1974 J. P. Piper

The Australasian Institute of Mining and Metallurgy (Illawarra Branch) Geology Prize

Awarded to the student proceeding to an undergraduate degree in Science with the best academic record in any Geology course in the Faculty of Science.

1974 A. Hutton

The Metallurgical Society Award

Awarded to the student with the best academic record in the subjects Metallurgy IIA or Metallurgy II.

1974 R. J. Nightingale

The Gina Savage Prize

Awarded to the final year woman student proceeding to an undergraduate degree in Science with the best academic record.

1974 Miss A. L. Heinis

The Marjory Brown Prize

Awarded to the final year woman student proceeding to an undergraduate degree in Arts with the best academic performance in fourth year English, when that course is being offered, and otherwise in third year English.

1974 No award made

The Bachelor Degrees

A GUIDE TO THE BACHELOR DEGREE REQUIREMENTS

1. Introduction

The following is an outline of the new degree arrangements approved for introduction in 1975. Intending students are advised that this is a general statement only of the new degree structure. Students must consult the formal Bachelor Degree Requirements set out in following pages before enrolling.

In addition to the degrees set out below the degree of Bachelor of Science (Engineering) (BSc(Eng)) is available only to students already enrolled in the degree. The requirements for this degree were set out in the Wollongong University College Handbook 1974. Students must consult with the appropriate Departmental Chairman before re-enrolling in this degree.

Courses of study are available leading to the following degrees:

Bachelor of Arts (BA)

where the only restriction in the programme is on the levels of subjects taken and pre- and co-requisites, if any.

Bachelor of Commerce (BCom)

which specifies levels and a minimum number of subjects to be taken from those offered by or approved by the Departments of Accountancy and Economics and specified 100 level subjects.

Bachelor of Science (BSc)

which specifies levels and a minimum number of subjects to be taken from those offered by or approved by member Departments of the Faculties of Mathematics and/or Science.

Bachelor of Engineering (BE)

where there is a prescribed core curriculum as well as electives offered by Departments in the Faculties of Engineering, Commerce, Science and Mathematics.

Bachelor of Metallurgy (BMet)

where the core subjects in the course are prescribed.

Most of the degrees may be completed by full or part-time study. They may be taken either as Pass or Honours degrees.

Degree Offered (Pass and Honours)	*Principal Fields of Study*
ARTS	
Bachelor of Arts—BA	Accountancy Biology Chemistry Civil Engineering Economics Education Electrical Engineering English French Geography Geology History History and Philosophy of Science Mathematics Mechanical Engineering Metallurgy Mining Engineering* Philosophy Physics Psychology Sociology
COMMERCE	
Bachelor of Commerce—BCom	Accountancy Economics
ENGINEERING	
Bachelor of Engineering—BE	Electrical Engineering Civil Engineering Mechanical Engineering Mining Engineering*
METALLURGY	
Bachelor of Metallurgy—BMet	Metallurgy
SCIENCE	
Bachelor of Science—BSc	Biology Chemistry Geology Mathematics Physics

* Refer to Prescribed Courses, Prescription A, 5 Bachelor of Engineering—Mining Engineering.

The course for the degree of Bachelor of Arts allows a student to enrol in any of the fields of study offered by the University and includes the possibility of obtaining professional qualifications in some areas (e.g. Accountancy, Psychology). However, if a student wishes to obtain a degree specific to his vocational interest he may prefer to enrol for that particular degree (e.g. Engineering, Commerce, Metallurgy, Science).

Transfers from courses in Commerce, Engineering, Metallurgy and Science to Arts can be made readily. Transfers from Arts to other degrees may create difficulties in some cases because of the more detailed specification in programmes for degrees in Commerce, Engineering, Metallurgy and Science.

At the beginning of each year candidates enrol for a particular degree and select a course of study from the Schedule of Subjects (Arts, Commerce, Science) or Prescribed Courses (Engineering and Metallurgy) after consulting academic advisers. Depending on their interests, candidates may choose to specialise in a particular field of study, or they may undertake a programme covering more than one field of study. The choice of subjects will be limited by the exigencies of the time-table. Candidates may be permitted to change a programme of study during the year.

2. Summary of the Degree Requirements

2.1 COURSES IN ARTS, COMMERCE AND SCIENCE*

Each degree requires a student to complete successfully subjects having a minimum total value of 144 credit points for a three-year pass course and 192 credit points for a four-year honours course. Credit points are a measure of the work load required by each subject.

Each subject at first-year level is known as a "100-level subject"; each subject at second-year level as a "200-level subject"; each subject at third-year level as a "300-level subject", and each subject at fourth-year level as a "400-level subject". On satisfactory completion of a subject, a student is credited with the number of points allocated to that subject in the Schedule of Subjects.

A candidate whose programme of studies in any year is made up of subjects aggregating not less than 36 credit points is designated a full-time student for that year. A full-time student normally enrols in a programme not exceeding 48 credit points although approval may be given for a programme in excess of this limit.

The normal programme for a part-time student amounts to about 24 credit points per year although this may be increased in appropriate cases.

Except with special approval, a candidate is required to enrol in a programme of study made up of subjects aggregating not less than

* For full details see Parts III, IV and VII of the Bachelor Degree Requirements.

12 credit points in his first year of enrolment and not less than 16 credit points in any subsequent year of enrolment.

The completion of requirements for the degree of Bachelor of Arts, Commerce and Science normally requires a minimum of three years' full-time study (longer for part-time students). The completion of the requirement for the honours degrees of Bachelor of Arts, Commerce and Science in general requires four years' full-time study (longer for part-time students).

Arts Degrees

Pass Degree

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Arts, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 144 credit points of which:

(i) not less than 72 shall be obtained in respect of subjects other than 100-level subjects, and

(ii) not less than 24 shall be obtained in respect of 300-level subjects approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman as providing a substantial and coherent study at the 300-level.

Honours Degree

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Arts with Honours, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 192 credit points. Further,

(i) the programme of study shall be approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman.

(ii) entry to the honours year shall be determined at the end of the equivalent of three years of full-time study by the Academic Senate on the recommendation of the appropriate Departmental Chairman on the basis of the student's performance.

Commerce Degrees

Pass Degree

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Commerce, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 144 credit points, of which:

(i) not less than 96 shall be obtained in respect of subjects offered by or approved by the Departments of Accountancy and Economics in the Schedule of Subjects.

(ii) 84 (including 24 in respect of 300-level subjects) shall be obtained in respect of subjects offered by either the Department of Accountancy or the Department of Economics.

(iii) not less than 24 shall be obtained in respect of 300-level subjects (selected from those offered in the Schedule of Subjects) approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman as providing a substantial and coherent study at the 300-level.

(iv) Further, there shall be prescribed subjects as approved by the Academic Senate on the recommendations of the Departmental Chairmen of Accountancy and Economics.*

Honours Degree

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Commerce with Honours, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 192 credit points. Further,

(i) the programme of study shall be approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman.

(ii) entry to the honours year shall be determined at the end of the equivalent of three years of full-time study by the Academic Senate on the recommendation of appropriate Departmental Chairman on the basis of the student's performance.

Science Degrees

Pass Degree

In order to complete a programme of study which qualifies for the award of Bachelor of Science, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 144 credit points, of which:

(i) not less than 108 shall be obtained in respect of subjects selected from those offered by or approved by the member Departments in the Faculties of Mathematics and/or Science in the Schedule of Subjects; further, of the 108 credit points, not less than 54 shall be obtained in respect of subjects selected from one of the member Departments; the subjects making up the 108 credit points must be approved by the Chairman of one of the two faculties concerned.

(ii) not more than 60 shall be obtained in respect of 100-level subjects.

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* The Academic Senate has approved the following prescribed subjects: Economics I and II, Accounting and Financial Management IA and IB, and Quantitative Methods I and II must be taken with the proviso that Accountancy students may elect to take an approved Mathematics subject in place of Quantitative Methods I and II subject to the approval of the Departmental Chairman of Accountancy.

(iii) not less than 24 shall be obtained in respect of 300-level subjects selected from the Schedule of Subjects approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman as providing a substantial and coherent study at the 300 level.

Honours Degree

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Science with Honours, a candidate must obtain, from the successful completion of subjects listed in the Schedule of Subjects, an aggregate of not less than 192 credit points. Further,

(i) the programme of study shall be approved by the Academic Senate on the recommendation of the appropriate Departmental Chairman;

(ii) entry to the honours year shall be determined at the end of the equivalent of three years of full-time study by the Academic Senate on the recommendation of the appropriate Departmental Chairman on the basis of the student's performance.

2.2 COURSES IN ENGINEERING AND METALLURGY

Engineering Degrees

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Engineering, a candidate must successfully complete the subjects set out in Prescription A.*

The prescriptions set out the courses that must be taken from the Faculty of Engineering and the options permitted from other Departments.

The completion of requirements for the degree in Engineering normally requires a minimum of four years' full-time study (longer for part-time students). Honours are awarded on the basis of performance in the prescribed programme.

Metallurgy Degrees

In order to complete a programme of study which qualifies for the award of the degree of Bachelor of Metallurgy, a candidate must successfully complete the subjects set out in Prescription B.†

The completion of the requirements for the degree in Metallurgy normally requires a minimum of four years full-time study (longer for part-time students). Honours are awarded on the basis of performance in the prescribed programme.

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* For full details see Part V of the Bachelor Degree Requirements.
† For full details see Part VI of the Bachelor Degree Requirements.

3. Transitional Arrangements

Transitional arrangements for students previously enrolled at Wollongong University College have been published. Students affected by these transitional arrangements may obtain further information from the Student Enquiries Office.

4. Schedule of Subjects for Arts, Commerce and Science Courses

Intending students are strongly urged to read the details of each subject in which they are interested, as set out in the entry for each Department in the Section "Description of Subjects". In particular, when selecting their programme of study they should ensure that they are complying with any special requirements concerning the subject or subjects which they wish to study beyond the first year (100 level).

The information in the columns headed "Prerequisites" and "Corequisites" indicates the minimum requirements to be met by students wishing to enrol in the various subjects.

Students or intending students, who feel that they have good grounds for requesting waiver of a prerequisite or corequisite should present their case to the appropriate Departmental Chairman.

Under the Requirements a Departmental Chairman may dispense with the need to comply with a prerequisite or corequisite. However, prerequisites and corequisites have been carefully determined and waiver will be allowed only in cases where the Departmental Chairman and the Academic Senate are satisfied that the student has a background of study sufficient to take the subject profitably.

In the column headed "Session Offered" the following coding is used.

1 = first half-year
2 = second half-year
3 = full year

The University reserves the right to withdraw any subject or subjects at any time without notice.

BACHELOR DEGREE REQUIREMENTS

Being Requirements for—

The Degrees of:
Bachelor of Arts
Bachelor of Commerce
Bachelor of Engineering
Bachelor of Metallurgy
Bachelor of Science

The Honours Degrees of:
Bachelor of Arts
Bachelor of Commerce
Bachelor of Engineering
Bachelor of Metallurgy
Bachelor of Science

Part I—Preliminary

SHORT TITLE

1. These Requirements may be cited as the "Bachelor Degree Requirements".

COMMENCEMENT

2. These Requirements shall come into operation on 1st January, 1975.

PARTS

3. These Requirements are divided into parts, as follows:

Part I—Preliminary (Clause 1-6)
Part II—General (Clause 7-15)
Part III—Bachelor of Arts (Clause 16)
Part IV—Bachelor of Commerce (Clause 17)
Part V—Bachelor of Engineering (Clause 18)
Part VI—Bachelor of Metallurgy (Clause 19)
Part VII—Bachelor of Science (Clause 20)
Part VIII—Honours Degrees (Clause 21-28)
Part IX—Miscellaneous (Clause 29-31)
Part X—Schedules.

ABBREVIATED TITLES

4. In the University of Wollongong there shall be degrees of Bachelor as follows:

4.1 the degrees of

Bachelor of Arts (BA)
Bachelor of Commerce (BCom)
Bachelor of Engineering (BE)
Bachelor of Metallurgy (BMet)
Bachelor of Science (BSc)

4.2 the honours degrees of

Bachelor of Arts (BA(Hons))
Bachelor of Commerce (BCom(Hons))
Bachelor of Engineering (BE(Hons))
Bachelor of Metallurgy (BMet(Hons))
Bachelor of Science (BSc(Hons))

INTERPRETATION

5.1 In these Requirements, unless the contrary intention appears,

5.1.1 "course" means both the combination of subjects taken in any one year, and the sequence of subjects taken over several years, leading to a degree of the University;

5.1.2 "subject" means a unit of study of single or double session duration;

5.1.3 "100-level subject" means a subject at first year level,
"200-level subject" means a subject at second year level,
"300-level subject" means a subject at third year level,
"400-level subject" means a subject at fourth year level;

5.1.4 "credit points" means the value attributed to a subject as a component in a degree;

5.1.5 "academic adviser" means a person designated by the Academic Senate to advise a candidate proposing a course of study on the conformity of that course to these requirements.

5.1.6 "candidate" means a candidate for a degree of the University.

5.1.7 "full-time" candidate means a full-time candidate who is enrolled in any year in a subject or subjects with a value of not less than 36 credit points in courses for the degrees of Arts, Commerce or Science, or not less than the equivalent of three quarters of a year's programme in Courses for the degrees of Engineering or Metallurgy.

5.1.8 "part-time" candidate means a candidate who is not designated as a full-time candidate.

CONFERRING OF DEGREES

6. The degrees or honours degrees of Bachelor, as prescribed by Requirements 4.1 and 4.2 of these Requirements, may be conferred by the Council on a candidate who has to the satisfaction of the Academic Senate complied with these Requirements. Provided that in no case shall any of the degrees referred to in Requirement 4 be conferred more than once on the same candidate.

Where a candidate has qualified more than once for the award of the same degree the Registrar shall issue a certificate certifying to the fact and setting out the subjects and the grades awarded.

Part II—General

ENROLMENT

7.1 A candidate qualified for candidature for the degree of Bachelor of Arts, Commerce, Engineering, Metallurgy or Science shall apply to the Registrar and be enrolled in the first and each subsequent year as a full-time or part-time student for one of the above degrees. Unless provided by these Requirements no candidate shall be enrolled for more than one degree in any one year except with the approval of the Academic Senate.

SCHEDULES OF SUBJECTS

8.1 The Academic Senate shall approve the subjects for the degrees in Arts, Commerce, Engineering, Metallurgy and Science. The subjects so approved shall be set out in schedules to these requirements which shall include where relevant the credit points, subject prerequisites, co-requisites, when offered, and any restrictions or recommendations for each subject. The Schedules of Subjects are:

Arts and General Studies	—Schedule A
Commerce	—Schedule B
Engineering	—Schedule C
Metallurgy	—Schedule D
Science	—Schedule E

COURSE OF STUDY

9.1 Subject to these Requirements a candidate shall, in each year, enrol in a course of study (selected from the Schedules of Subjects) which he shall propose after consultation with an academic adviser.

9.2 Except with the approval of the Academic Senate, in any year of enrolment a candidate shall not enrol in a subject or subjects with a value less than 12 credit points selected from the Schedules for the degrees of Arts, Commerce and Science, or less than the equivalent of one quarter of the course for a full-time year in the degrees of Engineering and Metallurgy. This requirement shall not apply when a candidate, in order to complete his degree, needs less than 12 credit points in subjects selected from the Schedules for the degrees of Arts, Commerce and Science, or less than one quarter of the course for a full-time year in the degrees of Engineering and Metallurgy; such a candidate must enrol for the amount of his course needed to complete the degree.

9.3 Normally, in any year of enrolment a candidate shall not enrol in subjects with a value of more than 48 credit points in courses for the degrees of Arts, Commerce and Science or more than the equivalent of the programme for a full-time year in the courses for the degrees of Engineering and Metallurgy, except with the approval of the Academic Senate.

9.4 Except with the approval of the Academic Senate, a candidate may not enrol in a subject unless he satisfies the conditions for enrolment specified in the Schedules of Subjects.

CHANGE OF COURSE

10.1 Where a candidate seeks to change his course of study enrolled in pursuant to Requirement 9.1 he shall apply in writing to the Registrar after consultation with an academic adviser.

10.2 Where the change of course referred to in Requirement 10.1 includes discontinuance of a subject or subjects, the candidate shall be deemed not to have been enrolled in the subject or subjects if he discontinues before the end of the fourth week of the session in which the subject or subjects commenced.

10.3 A candidate discontinuing a subject or subjects after the end of the fourth week of the session in which the subject commenced shall be recorded as discontinuing the subject or subjects as from the date of discontinuance; except that an assessment grade pursuant to Requirement 12.4 shall be determined by the relevant Departmental Chairman and entered on the record of a candidate who discontinues after the last day of classes as set out in the University Calendar for the appropriate session.

10.4 Where a date of discontinuance is recorded it shall be the date on which a notice of discontinuance on the prescribed form is lodged with the Registrar.

LEAVE OF ABSENCE

11. Subject to these Requirements a candidate may be granted leave of absence for up to one year by the Registrar on receipt of an application in writing; applications for leave of absence in excess of one year shall be determined by the Academic Senate.

ASSESSMENT

12.1 Subject to these Requirements, the declaration whether a candidate has completed satisfactorily a subject forming part of his course for the degree of Bachelor so as to gain the number of credit points specified in the Schedules of Subjects for the degrees of Arts, Commerce and Science, or standing in the subject for the degrees of Engineering and Metallurgy, shall be made by the Academic Senate.

12.2 In order to complete a subject satisfactorily and to gain the number of credit points specified for the subject in the Schedules for the degrees of Arts, Commerce and Science or standing in a subject prescribed for a degree in Engineering or Metallurgy, a candidate shall

12.2.1 attend such classes; and

12.2.2 complete such essays, exercises and practical work and present himself for such tests and examinations; and

12.2.3 reach a satisfactory standard in such completed work as may be determined by the relevant Departmental Chairman. Provided that a candidate whose performance was affected or was prevented by illness or other cause beyond his control from satisfying the requirements of this Requirement shall report the circumstances in writing (supported by evidence) to the Registrar who shall inform the Departmental Chairman; and the Departmental Chairman may take into account such illness or other cause when assessing the candidate's performance. The candidate shall submit such a report to the Registrar not later than seven days following the illness or other cause referred to above, except that it may be submitted by some other person if circumstances prevent the candidate from taking the required action.

12.3 The Academic Senate shall determine a period at the end of each session when examinations may be scheduled.

12.4 The Academic Senate shall determine the grades to be used for recording the level of achievement in a subject. The grade of achievement of a candidate in a subject shall be declared by the Academic Senate after advice from the relevant Departmental Chairman whose assessment shall be based on the candidate's level of performance with respect to Requirement 12.2.

MINIMUM RATE OF PROGRESS

13.1 The required minimum rate of progress in the degrees of Arts, Commerce and Science shall be the attainment of a number of credit points (excluding credit points granted pursuant to Requirement 15) aggregated as follows:

13.1.1 during the first two years of candidature, 48 credit points for full-time candidates and 24 credit points for part-time candidates, and

13.1.2 thereafter 32 credit points for each year of full-time candidature and 16 credit points for each year of part-time candidature.

13.2 The required minimum rate of progress in the degrees of Engineering or Metallurgy shall be the successful completion of subjects (excluding standing granted pursuant to Requirement 15) aggregated as follows:

13.2.1 during the first two years of candidature the first year of the course prescribed for full-time candidates, and the equivalent of half of the first year of the course prescribed for part-time candidates.

13.2.2 thereafter two thirds of the course prescribed for each year of candidature.

RESTRICTIONS ON ENROLMENT

14.1 Subject to these Requirements, a candidate who has failed to complete a subject satisfactorily after having enrolled therein twice may not enrol again in that subject except with permission of the Academic Senate.

14.2 Subject to these Requirements, a candidate who fails to maintain the required minimum rate of progress in a course of study set out in Requirement 13 may not enrol in any subject without showing cause to the satisfaction of the Academic Senate why enrolment should be permitted.

14.3 A candidate who, in the opinion of the Academic Senate has an unsatisfactory academic record in any other university or tertiary institution, shall not be permitted to enrol in any subject without the approval of the Academic Senate.

14.4 A candidate not permitted to enrol pursuant to this Requirement in a particular year may apply to the Academic Senate for permission to enrol in the following year.

14.5 Where a candidate required to show cause or to obtain the approval of the Academic Senate under this Requirement is permitted to enrol in any subject or subjects in the University, such enrolment shall be subject to any conditions imposed by the Academic Senate.

CREDIT TOWARDS DEGREE

15.1 A candidate who has completed in a university or other tertiary institution approved by the Academic Senate one or more subjects approved for the purpose of this Requirement by the Academic Senate may, subject to this Requirement, be granted such credit therefor as may be determined by the Academic Senate.

15.2 A candidate enrolled for a degree of Arts, Commerce or Science and granted credit pursuant to this Requirement shall in no case be eligible by reason thereof to be credited with more than 96 credit points, and shall in any case

15.2.1 complete such subjects as shall permit the obtaining of at least 24 credit points in 300-level subjects (selected from the Schedules of Subjects referred to in Requirement 8 of these Requirements) determined by the Academic Senate as providing a substantial and coherent study at the 300-level, and

15.2.2 complete such other subject or subjects as may be determined by the Academic Senate.

15.3 A candidate enrolled for a degree of Engineering or Metallurgy and granted credit pursuant to this Requirement shall in no case be eligible by reason thereof to be credited with more than two-thirds of the course and shall in any case

15.3.1 complete such subjects as shall permit the attaining of a satisfactory performance in at least three-quarters of the final year, or its part-time equivalent if a part-time candidate, of the prescribed course determined by the Academic Senate, and

15.3.2 complete such other subject or subjects as may be determined by the Academic Senate.

15.4 A candidate shall not be granted credit pursuant to this Requirement for subjects completed more than 10 years previously, except with the approval of the Academic Senate.

15.5 A candidate may, with the prior approval of the Academic Senate, be permitted to enrol for subjects at another university or tertiary institution and on successful completion of the subjects to have them credited towards a degree of the University.

15.6 Notwithstanding anything to the contrary contained in this Requirement a candidate who is a graduate or who has satisfied the requirements for a degree or other award of a university or other tertiary institution approved by Academic Senate shall not be credited pursuant to this Requirement with more than 66 credit points in the case of degrees in Arts, Commerce and Science, except that appropriate subjects passed but not included in the previous degree may extend the maximum to 96 credit points; or one half of the prescribed course in the case of degrees in Engineering and Metallurgy, except that appropriate subjects passed but not included in the previous degree may extend the maximum to two-thirds of the prescribed course.

15.7 Save with the approval of the Academic Senate a candidate who has satisfactorily completed, either at the University or elsewhere, a subject which, in the opinion of the Academic Senate is a similar subject and for which credit has been obtained for a particular degree shall not be permitted to enrol in that subject for credit towards that particular degree.

Part III—Bachelor of Arts

DEGREE REQUIREMENTS

16. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Arts, a candidate shall, subject to these Requirements, obtain from the successful completion of subjects listed in Schedule A, an aggregate of not less than 144 credit points of which

16.1 not less than 72 shall be obtained in respect of subjects other than 100-level subjects; and

16.2 not less than 24 shall be obtained in respect of 300-level subjects determined by the Academic Senate as providing a substantial and coherent study at the 300-level.

Part IV—Bachelor of Commerce

DEGREE REQUIREMENTS

17.1 In order to complete a course of study which qualifies for the award of the degree of Bachelor of Commerce, a candidate shall, subject to these Requirements, obtain an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A of which

17.1.1 not less than 72 shall be obtained in respect of subjects other than 100-level subjects; and

17.1.2 not less than 96 shall be in respect of subjects selected from Schedule B.

17.2 Of the 96 credit points specified in Requirement 17.1.2, 36 shall be obtained from the prescribed subjects in Schedule B-1.

17.3 Candidates enrolling for a specialisation in Accountancy shall obtain 60 credit points of the 96 specified in Requirement 17.1.2 from the prescribed subjects in Schedule B-2.

17.4 Candidates enrolling for a specialisation in Economics shall obtain 60 credit points of the 96 specified in Requirement 17.1.2 from the prescribed subjects in Schedule B-3.

17.5 With the approval of the relevant Departmental Chairman in either Accountancy or Economics a candidate may take 6 credit points of the 60 specified in Requirement 17.3 or 17.4 from Schedule A.

17.6 Of the 60 credit points specified in Requirements 17.3 and 17.4 not less than 24 shall be obtained in respect of 300-level subjects determined by the Academic Senate as providing a substantial and coherent study in subjects from the Department of Accountancy or the Department of Economics.

Part V—Bachelor of Engineering

DEGREE REQUIREMENTS

18. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Engineering, a candidate shall, subject to these Requirements, successfully complete the subjects prescribed in one of the courses set out in Schedule C.

Part VI—Bachelor of Metallurgy

DEGREE REQUIREMENTS

19. In order to complete a course of study which qualifies for the award of the degree of Bachelor of Metallurgy, a candidate shall, subject to these Requirements, successfully complete the subjects set out in Schedule D.

Part VII—Bachelor of Science

DEGREE REQUIREMENTS

20.1 In order to complete a course of study which qualifies for the award of Bachelor of Science, a candidate shall, subject to those Requirements, obtain:

either

20.1.1 an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A of which not less than 108 shall be in respect of subjects selected from Schedule E-1; further, of the 108 credit points, not less than 84 shall be in respect of subjects offered by a member department of the Faculty of Mathematics,

or

20.1.2 an aggregate of not less than 144 credit points by the successful completion of subjects listed in Schedule A, of which not less than 108 shall be in respect of subjects selected from Schedule E-2; further, of the 108 credit points, not less than 60 shall be in respect of subjects offered by one of the member departments of the Faculty of Science.

20.2 Of the 144 credit points specified in Requirements 20.1.1 or 20.1.2

20.2.1 not more than 60 credit points shall be in respect of 100-level subjects; and

20.2.1 not less than 36 credit points shall be in respect of 300-level subjects, of which at least 24 from Schedule E-1 or E-2 shall be approved by the Academic Senate as providing a substantial and coherent study at the 300 level.

Part VIII—The Honours Degree of Bachelor

PRELIMINARY

21. Subject to the succeeding Requirements, Requirements 1 to 20 inclusive of these Requirements shall, unless the context or subject matter indicate a contrary intention, have equal application to candidates for the honours degree of Bachelor as to candidates for the degree of Bachelor.

ADMISSION TO HONOURS DEGREE COURSES IN ARTS, COMMERCE AND SCIENCE

22. In order to be admitted as a candidate for the degree of Bachelor with Honours in Arts, Commerce or Science a candidate shall

22.1 have (save as determined by the Academic Senate in exceptional cases) qualified for the award of a degree of Bachelor of Arts, Commerce or Science of the University; and

22.2 have attained in the subjects completed for his degree a standard of achievement approved by the Academic Senate; and

22.3 have completed satisfactorily such subjects as may have been determined by the Academic Senate

or

22.4 hold from another University qualifications or academic attainments approved by the Academic Senate as equivalent to those set out in Requirements 22.1 and 22.2. Provided that the Academic Senate may require an applicant, before being admitted as a candidate for the honours degree of Bachelor, to complete such work and sit for such examinations as the Academic Senate may determine.

COURSE OF STUDY FOR THE HONOURS DEGREE COURSE IN ARTS, COMMERCE AND SCIENCE

23.1 A candidate for the degree of Bachelor with Honours in Arts, Commerce or Science shall obtain an aggregate of not less than 48 credit points from the successful completion of subjects approved by the Academic Senate from those listed in the Schedules of Subjects at a standard of achievement approved by the Academic Senate.

23.2 A candidate may be enrolled for

either

23.2.1 a single honours degree where subjects are taken from one department.

or

23.2 a joint honours degree where subjects are taken from more than one department.

LENGTH OF CANDIDATURE FOR HONOURS DEGREE COURSE IN ARTS, COMMERCE AND SCIENCE

24. Unless otherwise determined by the Academic Senate a full-time candidate shall pursue the course of study approved under Requirement 23 for two successive half-years and a part-time candidate shall pursue the course of study for four successive half-years. Provided that a candidate admitted pursuant to Requirement 22.4 may be required by the Academic Senate to pursue a course of study for more than two successive half-years if a full-time candidate and for more than four successive half-years if a part-time candidate.

ADMISSION, COURSE OF STUDY AND LENGTH OF CANDIDATURE FOR HONOURS DEGREE COURSES IN ENGINEERING AND METALLURGY

25. In order to complete a course of study which qualifies for the award of the degree of Bachelor with Honours in Engineering or Metallurgy, a candidate must complete the course for the degree of Bachelor of Engineering or Metallurgy at a standard of achievement determined by the Academic Senate.

ADDITIONAL HONOURS COURSE

26.1 A candidate who has qualified for the honours degree of Bachelor and who has fulfilled such requirements for admission to a second honours course as may be determined by the Academic Senate may be permitted by the Academic Senate to enrol for the second honours course provided that this course is, in the opinion of the Academic Senate, sufficiently different from the first honours course completed.

26.2 Unless otherwise determined by the Academic Senate a candidate permitted to undertake a second honours course pursuant to Requirement 26.1 shall comply with Requirements 23, 24, and 25 where relevant.

CLASSES OF HONOURS

27. A candidate who has satisfactorily fulfilled the Requirements prescribed may be awarded an honours degree in one of the following classes:

Honours Class I
Honours Class II Division 1
Honours Class II Division 2
Honours Class III

TERMINATION OF CANDIDATURE

28. Unless otherwise determined by the Academic Senate a candidate who, pursuant to these Requirements, fails to qualify for the award of any class of honours referred to in Requirement 27 may not continue as a candidate for the honours degree of Bachelor.

Part IX—Miscellaneous

GENERAL SAVING CLAUSE

29. Notwithstanding anything to the contrary herein contained the Academic Senate may, in any case in which it may deem it appropriate to do so, dispense with or suspend any requirement of or prescription by these regulations. Any such action by the Academic Senate shall in every instance be reported to the Council at its next meeting.

APPLICATION OF AMENDING REQUIREMENTS

30. Where, after the commencement of these Requirements an amendment relating to the courses of study that may be taken by candidates for the pass degrees of Bachelor or the degrees with honours is made to these Requirements, the amendment does not apply to such a candidate who, before the making of the amendment, completed 12 credit points or the equivalent of one quarter of the course for a full-time year in the degrees of Engineering or Metallurgy, unless

30.1 the candidate elects that the amendment apply to him and submits to the Academic Senate proposed alterations to his course that are in accordance with these Requirements as amended by the amendment and the Academic Senate approved those alterations or

30.2 the Academic Senate otherwise determines.

APPEAL

31. A candidate may appeal against any decision made pursuant to these Requirements to the Academic Senate which may determine the matter as it sees fit.

Part X—The Schedules

SCHEDULE A—ARTS AND GENERAL STUDIES

SCHEDULE B—COMMERCE

SCHEDULE C—ENGINEERING

SCHEDULE D—METALLURGY

SCHEDULE E—SCIENCE

All the subjects set out in the Schedules of Subjects are offered contingent upon the availability of staff and the level of student enrolments.

NOTE: SUBJECTS PRINTED IN ITALICS IN SCHEDULES A, B AND E, THE CONTENTS OF THE CIVIL ENGINEERING AND MECHANICAL ENGINEERING COURSES IN SCHEDULE C AND THE REVISED METALLURGY COURSES IN SCHEDULE D HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE RELEVANT DEPARTMENT TO CONFIRM THAT THESE SUBJECTS WILL BE OFFERED IN 1976.

SCHEDULE A

Arts and General Studies

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ACCOUNTANCY							**Faculty of Social Sciences**
100-level							
ACCY100	Accounting & Financial Management IA	100	6	1			
ACCY110	Accounting & Financial Management IB	100	6	2	A. & F.M. IA		
ACCY160	Law in Society	100	6	1			
ACCY161	Business Law I	100	6	2	Law in Society		
200-level							
ACCY211	Accounting & Financial Management IIA	200	6	1	A. & F.M. IB		
ACCY201	Accounting & Financial Management IIB	200	6	2	A. & F.M. IB		
ACCY231	Information Systems	200	6	1	A. & F.M. IB		
ACCY221	Business Finance	200	6	2	A. & F.M. IB		
ACCY242	Advanced Auditing	200	6	1	A. & F.M. IIB		
ACCY261	Business Law II	200	6	1	Business Law I		

NOTE: SUBJECTS PRINTED IN ITALICS IN SCHEDULE A HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE RELEVANT DEPARTMENT TO CONFIRM THAT THESE SUBJECTS WILL BE OFFERED IN 1976.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ACCOUNTANCY (Continued)							
ACCY262	Industrial Law	200	6	1	Law in Society		
ACCY212	Business Organisation and Policy	200	6	2	A. & F.M. IIA		
ACCY251	Taxation Law	200	6	2	Law in Society		
ACCY281	*Government Accounting and Financial Management*	200	6	1	A. & F.M. IB		
300-level							
ACCY302	Accounting & Financial Management IIIA	300	12	1	A. & F.M. IIB		
ACCY312	Accounting & Financial Management IIIB	300	12	2	A. & F.M. IIA		
ACCY322	Advanced Business Finance	300	6	1	Business Finance		
ACCY332	Advanced Information Systems	300	6	2	Information Systems		
ACCY303	*Selected Issues in Financial Accounting*	300	6	1	A. & F.M. IIB	A. & F.M. IIIA	
ACCY313	*Selected Issues in Management Accounting*	300	6	2	A. & F.M. IIA	A. & F.M. IIIB	
ACCY352	*Advanced Taxation Law*	300	6	1	Taxation Law		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ACCOUNTANCY (Continued)							
400-level							
ACCY403	Accounting Theory*	400	8	1			Entry to the Honours course or honours subjects requires the approval of the Academic Senate on recommendation of the Chairman of the Department: normally the equivalent of a BCom degree with Merit is required for entry.
ACCY404	Current Developments in Accounting Thought—Financial*	400	8	1			
ACCY413	Current Developments in Accounting Thought—Managerial*	400	8	1			
ACCY414	Management Planning & Control†	400	8	2			
ACCY453	Studies in Taxation†	400	8	2			
ACCY405	International Accounting†	400	8	2			
ACCY473	History and Development of Accounting Thought†	400	8	2			
ACCY406	Issues in Financial Accounting and Reporting†	400	8	2			
ACCY423	Investment Analysis and Management†	400	8	2			
ACCY493	Research Essay*	400	8	2			

* Compulsory subjects.

† Optional subjects, two required.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF BIOLOGY							**Faculty of Science**
100-level							
BIOL101	General & Human Biology I	100	12	3	Science 2S & Maths 2S at N.S.W. H.S.C.		Recommended Maths 2F at N.S.W. H.S.C.
200-level							
CHEM204	Physical Chemistry IIB	200	6	1	Chemistry IA & IB, Mathematics IA		
ELEC294	Intro. Systems Theory for Biologists	200	6	2	Biology I, Mathematics IA, Chemistry IA & IB, Bioenergetics I		
200/300-level							
BIOL601	*Bioenergetics I*	200/300	6	1	Gen. & Hum. Biology I, Chemistry IA & IB, Mathematics IA		Approval for taking Bioenergetics I & II subjects at the 300-level is at the discretion of the Departmental Chairman.
BIOL602	*Bioenergetics II*	200/300	6	2	Bioenergetics I, Physical Chemistry IIB		
BIOL603	*Bioenergetics III*	200/300	6	1	Normally Bioenergetics I & II		Approval for taking Bioenergetics III at the 200-level is at the discretion of the Departmental Chairman.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CHEMISTRY							**Faculty of Science**
100-level							
CHEM101	Chemistry IA: Intro. Physical & General Chemistry	100	6	1	Science 2S at N.S.W. H.S.C.		Recommended Science 2F at N.S.W. H.S.C.
CHEM102	Chemistry IB: Intro. Organic & Physical Chemistry	100	6	2	Chemistry IA		
200-level†							
CHEM201	Inorganic Chemistry II	200	6	2	Chemistry IB	Mathematics IA	
CHEM202	Organic Chemistry II	200	6	1	Chemistry IB	Mathematics IA	
CHEM203	Physical Chemistry IIA	200	6	2	Chemistry IB	Mathematics IA	
CHEM204	Physical Chemistry IIB	200	6	1	Chemistry IB	Mathematics IA	
CHEM206	Chemistry for Metallurgists	200	12	3	Chemistry IB	Mathematics IA	
300-level							
CHEM301	Analytical Chemistry IIIA*	300	6	1	Inorganic Chemistry II Physical Chemistry IIB		

† Chemistry IA and IB are pre-requisites for all Chemistry 200-level subjects.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CHEMISTRY (Continued)							
CHEM302	Analytical Chemistry IIIB*	300	6	2	Inorganic Chemistry II Physical Chemistry IIB		
CHEM303	Inorganic Chemistry III*	300	6	1	Inorganic Chemistry II Physical Chemistry IIA		
CHEM304	Organic Chemistry IIIA	300	6	2	Organic Chemistry II		
CHEM305	Organic Chemistry IIIB	300	6	1	Organic Chemistry II		
CHEM306	Physical Chemistry IIIA	300	6	2	Physical Chemistry IIA		
CHEM307	Physical Chemistry IIIB	300	6	1	Physical Chemistry IIB		
CHEM308	Spectroscopy III*	300	6	2	Organic Chemistry II Physical Chemistry IIB		
400-level							
CHEM401	Honours Lectures Part I	400	6	1	24 credit points gained from 300-level Chemistry subjects.		Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman.
CHEM402	Honours Lectures Part II	400	6	2			
CHEM410	Project	400	36	3		Honours Lectures Parts I and II	

* Students taking a single major in Chemistry (four 300-level subjects) may not take more than two of the subjects marked *.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING							**Faculty of Engineering**
100-level							
CIVL111	*Introduction to Design C*	100	3	2			
CIVL121	Applied Mechanics 1 (Old course)	100	6	1			
CIVL122	*Mechanics & Structures*	100	3	1			
CIVL123	*Dynamics for Civil Engineers*	100	3	2	Maths 2F and Science 2S at N.S.W. H.S.C.		
CIVL141	Materials 1 (Old)	100	6	2			
CIVL142	*Materials 1C*	100	6	2			
CIVL171	*Engineering Surveying 1*	100	3	1			
CIVL172	*Engineering Survey Camp*	100	2			CIVL171	
CIVL191	*Building Construction*	100	3	1			
CIVL192	*Civil Engineering Const. 1*	100	3	2			
CIVL193	*Excursions 1*	100	1				
200-level							
CIVL212	Design 2 (Old)	200	5†	2	MECH111	CIVL254	†This subject consists of Design IIA offered by the Department of Mechanical Engineering and Design II offered by the Department of Civil Engineering.
CIVL213	*Structural Design 1*	200	5	2	CIVL111	CIVL251	
CIVL216	Design M	200	5	3			
CIVL219	Exp. Stress Analysis	200	6	3	300-level Met. Subjects		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING (Continued)							
CIVL225	*Engineering Mechanics 1*	200	4	1	CIVL123		
CIVL226	*Engineering Mechanics 2*	200	4	2		CIVL281	
CIVL231	*Hydraulics 1*	200	4	2	MATH101		
CIVL242	Materials 2 (Old)	200	4	2		CIVL254	
CIVL243	*Materials 2C*	200	4	2		CIVL251	
CIVL251	*Strength of Materials 1*	200	4	1	CIVL122	CIVL281	
CIVL252	*Strength of Materials 2*	200	4	2		CIVL295	
CIVL254	Strength of Materials (Old)	200	4	1	CIVL121	MATH281	
CIVL273	*Engineering Surveying 2*	200	4	1		CIVL171	
CIVL281	*Computational Tech. in Civ. Eng. 1*	200	5	1	MATH101		
CIVL282	*Computational Tech. in Civ. Eng. 2*	200	5	2		CIVL281	
CIVL294	*Civil Engin. Construction 2*	200	4	1		CIVL192	
CIVL295	*Experimental Engin. 1C*	200	4	1	CIVL111 & 122		
CIVL296	*Excursions 2*	200	1				

Number	Subject	Level	Credit Points	Session Offered		Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING (Continued)								
300-level								
CIVL301	Mining Engineering 1	300	10	3	*			*Normal rules of progression require: 100-level subjects as requisites for 200-level subjects; 200-level subjects as requisites for 300-level subjects; 300-level subjects as requisites for 400-level subjects.
CIVL302	Mining & Mineral Process Eng.	300	5	3	*			
CIVL303	Engineering Surveying	300	5	3	*			
CIVL304	Mining Engineering 2	300	13	3	*			
CIVL305	Mineral Industry Elect. Project	300	5	3	*			
CIVL306	Mineral Processing 1	300	8	3	*			
CIVL307	Mine Survey. & Contr. Engin.	300	3	3	*			
CIVL312	*Civil Engineering Design*	300	4	1			CIVL252 & 326	
CIVL313	Design 3 (Old)	300	5	1			CIVL254	
CIVL314	*Structural Design 2*	300	4	2		CIVL312		
CIVL324	Applied Mechanics 4 (Old)	300	4	1		MECH222		
CIVL325	Applied Mechanics 5 (Old)	300	4	2			MATH281	
CIVL326	*Engineering Mechanics 3*	300	4	1		CIVL251		
CIVL327	*Engineering Mechanics 4*	300	4	2		CIVL226 & 282		
CIVL332	*Hydraulics 2*	300	4	1		CIVL231		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING (Continued)							
CIVL333	Fluid Mechanics 3B (Old)	300	4	2	MECH332		
CIVL334	*Hydraulics 3*	300	4	2	CIVL332		
CIVL343	Materials 3 (Old)	300	4	2		CIVL242	
CIVL344	*Materials 3C*	300	4	2	CIVL243		
CIVL351	Structures 1 (Old)	300	5	1	CIVL254		
CIVL353	*Structures 1C*	300	4	1	CIVL251		
CIVL354	*Structures 2C*	300	4	2	CIVL353		
CIVL361	Soil Mechanics 1 (Old)	300	4	1	CIVL254		
CIVL362	*Soil Mechanics 1*	300	4	1	CIVL251		
CIVL363	*Soil Mechanics 2*	300	4	2	*CIVL362*		
CIVL371	Surveying 1 (Old)	300	4	1			
CIVL372	Surveying 2 (Old)	300	4	2		CIVL371	
CIVL374	*Engineering Surveying 3*	300	4	2	CIVL273		
CIVL397	*Civil Engineer. Construc. 3*	300	4	1	CIVL294		
CIVL398	*Excursions 3*	300	1				
CIVL399	*Industrial Experience*	300	1				
CIVL781	*Coastal Engineering*	300/400	4	1			
CIVL782	*Geology for Civil Engineers*	300/400	4	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING (Continued)							
CIVL783	*Roads Engineering*	300/400	5	2			
CIVL784	Intro. Modern Languages	300/400	4	1			
400-level							
CIVL401	Civil Engineering Thesis	400	20	3			
CIVL410	*Civil Engineering Practice 1*	400	4				
CIVL411	*Civil Engineering Practice 2*	400	4				
CIVL412	*Civil Engineering Practice 3*	400	4				
CIVL413	*Civil Engineering Practice 4*	400	4				
CIVL414	Design 4B (Old)	400	5	2	CIVL212 & 313		
CIVL415	*Civil Engineering Practice 5*	400	4				
CIVL416	*Civil Engineering Practice 6*	400	4				
CIVL417	*Structural Design 3*	400	4	1	CIVL314		
CIVL434	*Hydraulic Engineering*	400	4	2	CIVL333		
CIVL444	Materials 4 (Old)	400	4	1			
CIVL445	*Civil Engineering Materials 1*	400	4	1	CIVL344		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF CIVIL ENGINEERING (Continued)							
CIVL446	*Civil Engineering Materials 2*	400	4	2	CIVL445		
CIVL452	Structures 2 (Old)	400	4	1		CIVL351	
CIVL453	Structures 3 (Old)	400	4	2	CIVL351		
CIVL455	*Structures 3*	400	4	2	CIVL354		
CIVL456	*Structures 4*	400	4	2	CIVL354		
CIVL462	Soil Mechanics 2 (Old)	400	5	2	CIVL361		
CIVL463	*Foundation Engineering*	400	4	1	CIVL363		
CIVL464	*Soil Mechanics 3*	400	4	2	CIVL363		
CIVL475	*Engineering Surveying 4*	400	4	2	CIVL374		
CIVL481	Engineering Management 1	400	3	1			
CIVL482	Engineering Management 2	400	3	2			
CIVL483	Public Health Engineering (Old)	400	5	2			
CIVL484	Roads Engineering (Old)	400	5	1			
CIVL485	Town Planning (Old)	400	5	1			
CIVL486	*The Civil Engineer & the Environment*	400	4	1			
CIVL487	Town Planning	400	5	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ECONOMICS (Continued)							
CIVL488	*Traffic Engin. & Transport.*	400	4	2			
CIVL490	*Excursions 4*	400	1				
CIVL491	*Computer Applic. in Civ. Eng. 1*	400	4	1	CIVL282 & 383	CIVL488	
CIVL492	*Computer Applic. in Civ. Eng. 2*	400	4	2	CIVL282	CIVL354	
CIVL493	*Public Health Engineering*	400	5	2			

DEPARTMENT OF ECONOMICS **Faculty of Social Sciences**

100-level							
ECON101	Economics I	100	6	1			Recommended Maths 2S at N.S.W. H.S.C.
ECON111	Economics II	100	6	2			
ECON121	Quantitative Methods I	100	6	1			Recommended Maths 2S at N.S.W. H.S.C.
ECON122	Quantitative Methods II	100	6	2			
200-level							
ECON203	*Macroeconomics*	200	6	1			
ECON204	*Public Finance*	200	6	2			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ECONOMICS (Continued)							
ECON213	*Microeconomics*	200	6	1			
ECON214	*International Economics*	200	6	2			
ECON221	Quantitative Methods III	200	6	1			It is recommended that units at any level should be attempted only after completion of corresponding units at the previous level.
ECON222	Quantitative Methods IV	200	6	2			
300-level							
ECON302	Comparative Economic Systems	300	8	2			
ECON311	Natural Resource Economics	300	8	1			
ECON312	Industrial Economics	300	8	1			
ECON303	*Economic Development Issues*	300	8	1			
ECON304	Economic Policy	300	8	1			
ECON305	Economic Development Planning	300	8	2			
ECON313	Transport Economics	300	8	2			Not to count with Geography of Transport Systems.
ECON314	Urban & Regional Economics	300	8	1			Not to count with Geography Urban Location & Structure.
ECON321	*Econometrics*	300	8	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ECONOMICS (Continued)							
ECON323	*Econometric Models*	300	8	2			
ECON322	Mathematical Economics	300	8	2			
400-level							
ECON431	Advanced Economic Analysis	400	30	3			Entry to the Honours year or honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman.
ECON441	Honours Thesis	400	18	3			
DEPARTMENT OF EDUCATION							**Faculty of Social Sciences**
200-level							
	Education II*:	200					
EDUC201	Educational Psychology	200	4	3	36 credit points		
EDUC202	Educational Sociology	200	4	3	36 credit points		
EDUC203	Philosophy in Education	200	4	3	36 credit points		
EDUC204	(a) Educational Research Methodology	200	4	3	36 credit points		
	(b) Atypical Children	200					
EDUC301	Education IIIA	300	24	3			

*Education II subjects will not be offered in 1976. Education IIIA, however, will be offered in 1976 and students may contact the Department for details.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ELECTRICAL ENGINEERING							**Faculty of Engineering**
100-level							
ELEC101	*Electrical Engineering 1*	100	6	3			
ELEC531	*Computers 1*	100/200	3	2			
ELEC551	*Instrumentation and Measurement*	100/200	3	2			
200-level							
ELEC201	Circuit Theory 1	200	4	1	Normal rules of progression require: 100-level subjects as shown in the prescription for Engineering courses; 200-level subjects as pre-requisites for 300-level subjects; 300-level subjects as pre-requisites for 400-level subjects. Exceptions apply to non-Engineering students. Details are available from the Department.		
ELEC202	Circuit Theory 2	200	4	2			
ELEC211	Electronics 1	200	4	1			
ELEC221	E.C. & D. 1	200	4	2			
ELEC251	Laboratory 2	200	3	2			
ELEC279	*Materials 2*	200	4	2			
ELEC291	Applied Electricity 1	200	8	3			
ELEC292	Applied Electricity 2	200	8	3			
ELEC293	Computers 1M	200	5	3			
ELEC294	Intro. Systems Theory	200	6	1			
ELEC631	Computers 2	200/300	4	1			
300-level							
ELEC341	Control 1	300	4	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ELECTRICAL ENGINEERING (Continued)							
ELEC342	Control 2	300	4	2			
ELEC312	Electronics 2	300	4	1			
ELEC313	Electronics 3	300	4	2			
ELEC322	E.C. & D. 2	300	4	2			
ELEC352	Laboratory 3A	300	3	1			
ELEC353	Laboratory 3B	300	3	1			
ELEC354	Laboratory 3C	300	3	2			
ELEC355	Laboratory 3D	300	3	2			
ELEC731	Computers 3	300/400	4	1			
ELEC732	Computers 4	300/400	4	2			
400-level							
ELEC403	Circuit Theory 3	400	4	1			
ELEC423	E.C. & D. 3	400	4	1			
ELEC461	Communications 1	400	4	1			
ELEC456	Laboratory 4	400	3	1			
ELEC404	Circuit Theory 4	400	4	2			
ELEC481	Probability & Ran. Process.	400	4	2			
ELEC424	Electric Energy Systems	400	4	2			
ELEC462	Communications 2	400	4	2			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
ELEC463	Signal Transmission	400	4	2			
ELEC443	Control 3	400	4	2			
ELEC425	Generalised Machine Theory	400	4	2			
ELEC472	Elec. Properties of Mats.	400	4	2			
ELEC457	Thesis	400	20	3			

DEPARTMENT OF ENGLISH — **Faculty of Humanities**

100-level							
ENGL101	Introduction to Modern Literature	100	12	3	H.S.C. English level 2 *or* H.S.C. English 2-unit course		A comprehensive course of study in English comprises not less than 52 credit points taken from ENGL101, 102, 210, 211, 207, 212, 213, 214, 310, 311, 312, 313.
ENGL102	Introduction to English Language Studies	100	12	3	"		
200-level							
ENGL207	Utopian and Anti-Utopian Literature	200	4	1			Students without ENGL101 may be admitted to units in English Literature 200-level subject to approval by the Departmental Chairman.
ENGL210	*Eighteenth-century Fiction*	200	4	2			
ENGL211	Romantic Poetry	200	4	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF ENGLISH (Continued)							
ENGL212	*Australian Literature*	200	4	2			
ENGL213	Old English	200	8	3	ENGL102		
ENGL214	*Middle English*	200	8	3	ENGL102		
ENGL215	*Modern Drama*	200	4	2			
300-level							
ENGL310	*Chaucer*	300	6	1			Students without ENGL101 or 102 may be admitted to units in English 300-level subject to approval by the Departmental Chairman.
ENGL311	Renaissance Poetry	300	6	1			
ENGL312	*Shakespeare and His Contemporaries*	300	6	2			
ENGL313	*Restoration and Augustan Literature*	300	6	2			
ENGL314	*Australian Fiction to 1920*	300	6	1			
400-level							
ENGL400	English IV Honours	400	48	3	Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman.		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF FRENCH							**Faculty of Humanities**
100-level							
FREN103	*French 103*	100	12	3			For students without pre-requisite for French 111
FREN111	French 111	100	6	1	Level 2 French at N.S.W. H.S.C.		
FREN112	French 112	100	6	2	French 111		
200-level							
FREN211	*French 211*	200	9	1	French 112		
FREN212	*French 212*	200	9	2	French 211		
GENERAL STUDIES							
GENE010	Aspects of Modern Psychology Part I		†	1			
GENE011	Contemporary History, Part I		†	1			
GENE012	Architecture, Part I		†	1			
GENE013	Population Studies		†	1			
GENE014	A History of Modern Art, Part I		†	1			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
GENERAL STUDIES (Continued)							
GENE431	Asia in the Twentieth Century, Part I (Advanced Elective)		†	1			These courses are available only to candidates enrolled for the degrees of BSc, BCom, BE, BSc(Eng) and BSc(Tech) of the University of New South Wales or where prescribed in the schedules for the Wollongong degrees of Bachelor of Engineering, Bachelor of Science (Engineering) or Bachelor of Metallurgy.*
GENE020	Introduction to English Linguistics		†	2			
GENE021	Aspects of Modern Psychology, Part II		†	2			
GENE022	Contemporary History, Part II		†	2			
GENE023	Architecture, Part II		†	2			
GENE024	A History of Modern Art, Part II		†	2			
GENE025	Aspects of Industrial Society		†	2			
GENE026	Developments in Present Day Music		†	2			
GENE101	*Function of Language*	100	6	2			
GENE432	Asia in the Twentieth Century, Part II (Advanced Elective)		†	2			

† 2 credit points per subject. These values are assigned only for the purpose of transfer to the degrees of the University of Wollongong, the requirements of which are described in the regulations of which this schedule of subjects is a part.

* Students concerned about their eligibility to enrol for General Studies subjects are advised to contact the Student Enquiries Office. These remarks do **not** apply to Women's Studies listed on p. 123.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
WOMEN'S STUDIES							
GENE211	*Women in Society I*	200	9	1	24 credit points		
GENE212	*Women in Society II*	200	9	2	24 credit points		
DEPARTMENT OF GEOGRAPHY							**Faculty of Social Sciences**
100-level							
GEOG111	Intro. Physical Geography	100	6	1			
GEOG101	Intro. Human Geography	100	6	2			
GEOG191	*Intro. Physical Geography Science*	100	6	1			Not to count with GEOG111 Intro. Physical Geography
200-level							
GEOG201	Urban Location & Structure	200	9	1	GEOG101		
GEOG203	*Population Geography*	200	9	1	GEOG101		
GEOG211	Biogeography	200	9	2	GEOG111 or Biology I		
GEOG209	*Asian Geography*	200	9	2	GEOG101, 111		
GEOG291	*Biogeography Science*	200	6	2	GEOG191 or Biology I		Not to count with GEOG211 Biogeography
300-level							
GEOG303	*Advanced Population Geography*	300	12	1	Normally GEOG201		Not to count with GEOG203

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF GEOGRAPHY (Continued)							
GEOG307	*Agricultural Geography*	300	12	1	Normally GEOG201		
GEOG313	Coastal Geomorphology	300	12	1	GEOG211 or 6 credit points of 200-level Geology		
GEOG301	Geography of Transport Systems	300	12	2	GEOG201, or 200-level Economics		Not to count with Transport Economics
GEOG311	Fluvial Geomorphology	300	12	2	GEOG211 or 6 credit points of 200-level Geology		
GEOG305	Regional Planning & Development	300	12	2	GEOG201		
GEOG309	*Advanced Asian Geography*	300	12	2	GEOG101, 111		Not to count with GEOG209
GEOG391	*Fluvial Geomorphology Science*	300	12	2	GEOG291 or 6 credit points of 200-level Geology.		Not to count with GEOG311 Fluvial Geomorphology
GEOG393	*Coastal Geomorphology Science*	300	12	1	GEOG291 or 6 credit points of 200-level Geology.		Not to count with GEOG313 Coastal Geomorphology
400-level							
GEOG402	Geography IV Honours	400	48	3	12 credit points at 100-level; 18 credit points at 200-level; 48 credit points at 300-level.		Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF GEOLOGY							**Faculty of Science**
100-level							
GEOL101	Geology 101	100	6	1			Not to count with Geology 111
GEOL102	Geology 102	100	6	2			Not to count with Geology 112
GEOL111	Geology 111	100	6	1			Not to count with Geology 101
GEOL112	Geology 112	100	6	2			Not to count with Geology 102
200-level							
GEOL201	Geology 201	200	6	1	Geology 101, 102		
GEOL202	Geology 202	200	6	2	Geology 201		
GEOL203	Geology 203	200	6	2	Geology 101, 102		
GEOL204	Geology 204†	200	6	1	Geology 101, 102		
GEOL214	Geology for Engineers I	200	4	1	1 yr of a prescribed Bachelor of Eng. degree course.		Not to count with any other Geology subjects.
200/300-level							
GEOL605	Geology 205/305	200/300	6	2	Geology 201		
GEOL606	Geology 206/306	200/300	6	1	Geology 101, 102	Geology 204	
GEOL607	Geology 207/307	200/300	6	2	Geology 101, 102		

†Not to be offered in 1976.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF GEOLOGY (Continued)							
GEOL608	Geology 208/308	200/300	6	1	Geology 201		
GEOL610	Geology 210/310†	200/300	6	2	Geology 101, 102		
GEOL611	Geology 211/311	200/300	6	2	Geology 101, 102		
GEOL612	Geology 212/312†	200/300	6	1	Geology 101, 102		
GEOL613	Geology 213/313	200/300	6	2	Geology 201		
300-level							
GEOL301	Geology 301	300	6	1	Geology 201		
GEOL302	Geology 302	300	6	2	Geology 202		
GEOL303	Geology 303	300	6	1	Geology 201, 203		
GEOL309	Geology 309†	300	6	1	Geology 201		
400-level							
GEOL401	Geology 401*	400	48	3			Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman. Exclude all other Geology subjects.

* For entry to the Geology IV Honours course students must satisfy requirements for the award of the degree of BSc in the Faculty of Science **and** have satisfactorily completed at least four second level and normally eight 300-level Geology courses including: Geology 201, 202, 203, 204, 205/305, 206/306, 207/307, 208/308.

† See note on page 125.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF HISTORY							**Faculty of Humanities**
100-level							
HIST101	English Social History, 1750-1940	100	12	3	Nil		
*200-level**							
HIST209	*Russian History, 1825-1964 A*	200	18	3	HIST101 English Social History, 1750-1940		
HIST210	*Australian Social History Since the Depression A*	200	18	3	HIST101 English Social History, 1750-1940		
*300-level**							
HIST311	*French History, 1700-1940 B*	300	24	3	Russian History, 1825-1964 A *or* Australian Social History Since the Depression A		
HIST312	*Modern Southeast Asian History B*	300	24	3	,,		
HIST313	*Religion & Society in Britain from the Reformation B*	300	24	3	,,		
HIST314	*Australian Social History Since the Depression B*	300	24	3	,,		

* The History subjects to be offered at the 200- and 300-level in 1976 are listed above. Other subjects, approved by Senate, but not to be offered in 1976 are not listed. The 200- and 300-level subjects had not been approved by Council at time of printing.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF HISTORY (Continued)							
400-level							
HIST401	History IV (Honours)	400	48	3	Entry to the Honours year or Honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman		
DEPARTMENT OF HISTORY AND PHILOSOPHY OF SCIENCE							**Faculty of Humanities**
100-level							
HPS140	*Greek Science A*	100	12	3			*Only 6 credit points if student has already passed HPS110 Greek Science*
HPS150	The Scientific Rev. and the Seventeenth Century A	100	12	3			
200-level							
HPS240	*Greek Science B*	200	18	3	*Either* Greek Science A *or* The Scientific Revolution and the Seventeenth Century A		Only 6 Credit Points if student has already passed 'Greek Science A'. *Only 12 credit points if student has already passed HPS110 Greek Science*
HPS250	*The Scientific Rev. and the Seventeenth Century B*	200	18	3	*Either* Greek Science A *or* The Scientific Revolution and the Seventeenth Century A		Only 6 Credit Points if student has already passed 'The Scientific Revolution and the Seventeenth Century A'

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF HISTORY AND PHILOSOPHY OF SCIENCE (Continued)							
HPS210	The Darwinian Revolution A	200	18	3	The Scientific Revolution and the Seventeenth Century A *or* B		
HPS220	Science and Society A	200	18	3	The Scientific Revolution and the Seventeenth Century A *or* B		
HPS251	*Philosophical & Ideological Perspectives in Science IA*	200	9	1	The Scientific Revolution and the Seventeenth Century A *or* B		
HPS252	*Philosophical & Ideological Perspectives in Science IIA*	200	9	2	The Scientific Revolution and the Seventeenth Century A *or* B		
300-level							
HPS310	The Darwinian Revolution B	300	24	3	The Scientific Revolution and the Seventeenth Century A *or* B		Only 6 Credit Points if student has already passed 'The Darwinian Rev. A'
HPS320	Science and Society B	300	24	3	The Scientific Revolution and the Seventeenth Century A *or* B		Only 6 Credit Points if student has already passed 'Science and Society A'
HPS351	*Philosophical & Ideological Perspectives in Science IB*	300	12	1	The Scientific Revolution and the Seventeenth Century A *or* B		Only 3 Credit Points if student has already passed 'Philosophical & Ideological Perspectives in Science IA'

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF HISTORY AND PHILOSOPHY OF SCIENCE (Continued)							
HPS352	*Philosophical & Ideological Perspectives in Science IIB*	300	12	2	The Scientific Revolution and the Seventeenth Century A *or* B		Only 3 Credit Points if student has already passed 'Philosophical & Ideological Perspectives in Science IIA
400-level							
HPS400	History and Philosophy of Science IV	400	48	3	Entry to the Honours year shall be determined by the Academic Senate on the advice of the Departmental Chairman.		
DEPARTMENT OF MATHEMATICS							**Faculty of Mathematics**
100-level							
MATH101	Mathematics IA ✓	100	12	3	Normally 2F Maths at N.S.W. H.S.C.		
MATH102	Mathematics IB ✓	100	12	3		Maths IA	
MATH141	*Computing Science IA*	100	6	3			
MATH142	*Computing Science IB*	100	6	3			
MATH143	*Computing Science IC*	100	6	1			Not to count with Computing Science IA *or* IB

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF MATHEMATICS (Continued)							
200-level							
MATH201	Mathematics IIA	200	12	3	Maths IA		
MATH211	Mathematics IIB	200	12	3		Maths IIA	
MATH221	Mathematics IIC	200	12	3	Maths IB		
MATH231	Mathematics IID	200	12	3	Maths IB	Maths IIA	
MATH281	Mathematics IIE	200	10	3	Maths IA		Not to count with Maths IB, IIA, IIB, IIC, IID, IIM, IIP, IIS202
MATH282	Mathematics IIM	200	4	1	Maths IA		Not to count with Maths IB, IIA, IIB, IIC, IID, IIE, IIS202
MATH233	Mathematics IIP	200	6	3		Maths IIA *or* IIM	Not to count with Maths IB *or* IID
MATH202	*Mathematics IIS*	200	6	3		Maths IIA *or* IIM	Not to count with Maths IB, IIB, IIC, IIE
300-level							
MATH301	Mathematics IIIA	300	12	3	Maths IIA *and* (IIB *or* IIS-283)		
MATH302	Mathematics IIIB	300	12	3	Maths IIA *and* (IIB *or* IIS-283)		
MATH303	Mathematics IIIC	300	12	3	Maths IIA		
MATH311	Mathematics IIID	300	12	3	Maths IIB	Maths IIIA	
MATH321	Mathematics IIIE	300	12	3	Maths IIA, IIC		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF MATHEMATICS (Continued)							
MATH322	Mathematics IIIF	300	12	3	Maths IIA, IIC		
MATH331	*Mathematics IIIG*	300	12	3	Maths IID		
MATH377	*Ocean Dynamics*	300	6	3	Maths IIB	Maths IIIA	Not to count with Maths IIID
400-level							
MATH401	Mathematics IV (Honours)	400	48	3	Entry to Honours year or Honours subject shall be determined by the Academic Senate on the advice of the Departmental Chairman		
DEPARTMENT OF MECHANICAL ENGINEERING							
100-level							
MECH111	Design I	100	6	2			
200-level							
MECH223	*Engineering Dynamics*	200	4	1	Normal rules of progression require: 100-level subjects as pre-requisites for 200-level subjects		
MECH251	Experimental Engineering I	200	4	1			
MECH241	Thermodynamics I	200	4	1			
MECH224	*System Dynamics*	200	4	2			
MECH212	Design IIA*	200		2			
MECH231	Fluid Mechanics I	200	4	2			

* Design IIA offered by the Department of Mechanical Engineering and Design IIB offered by the Department of Civil Engineering comprise the subject Design II, a 5 credit point subject.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
300-level							
MECH361	Control Systems I	300	4	1	Normal rules of progression require: 200-level subjects as pre-requisites for 300-level subjects		
MECH332	Fluid Mechanics II	300	4	1			
MECH342	Thermodynamics II	300	4	1			
MECH325	*Machine Dynamics*	300	4	1			
MECH362	Control Systems II	300	4	2			
MECH353	Experimental Engineering II	300	4	2			
MECH333	Fluid Mechanics IIIA	300	4	2			
MECH344	Heat Transfer	300	4	2			
MECH363	Systems Analysis I	300	4	2			
MECH391	*Heat Transfer for Civil Engineers**	300	4	2			
400-level							
MECH416	*Mechanical Engineering Design*	400	4	1	Normal rules of progression require: 300-level subjects as pre-requisites for 400-level subjects		
MECH423	Applied Dynamics I	400	4	1			
MECH443	Thermodynamics III	400	4	1			
MECH464	Systems Analysis II	400	4	1			

* Not to be offered in 1976.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF MECHANICAL ENGINEERING (Continued)							
MECH475	Nuclear Power Technology I	400	4	1			
MECH473	Materials Handling Systems I	400	4	1			
MECH471	Industrial Water Pollution Identification	400	4	1			
MECH424	Applied Dynamics II	400	4	2			
MECH434	Fluid Mechanics IV	400	4	2			
MECH465	Systems Analysis III	400	4	2			
MECH476	Nuclear Power Technology II	400	4	2			
MECH474	Materials Handling Systems II	400	4	2			
MECH472	Industrial Water Pollution Control	400	4	2			
MECH415	*Optimum Design*	400	4	2			
MECH401	Thesis	400	20	3			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF METALLURGY*							**Faculty of Engineering**
200-level							
METL200	Metallurgy I	200	20	3	Chemistry I, Mathematics IA		Metallurgy I, in 1975, exceeds 18 credit points. It is anticipated that in future years Metallurgy I will have a value of 18 credit points or less
300-level							
METL300	Metallurgy II	300	40	3	Metallurgy I		
METL310	Metallurgy IIA	300	20	3	Metallurgy I		
METL320	Metallurgy IIB	300	20	3	Metallurgy IIA		
400-level							
METL410	Metallurgy III	400	25	3	Metallurgy II		
METL420	Metallurgy Project	400	15	3		Metallurgy III	

* Metallurgy subjects are currently being revised and students should consult the Department for details.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF PHILOSOPHY							**Faculty of Humanities**
100-level							
PHIL103	*Philosophy 103*	100	12	3			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF PHYSICS							**Faculty of Science**
100-level							
PHYS141	*Fundamentals of Physics A*	100	6	3	Mathematics IA *or* IB		Not to count with the Art of Physics
PHYS142	*Fundamentals of Physics B*	100	6	3	Mathematics IA *or* IB		Not to count with the Art of Physics
PHYS151	*The Art of Physics*	100	6	2			
200-level							
PHYS210	Experimental Physics A	200	2	1	Physics I		
PHYS260	Experimental Physics B	200	2	2	Physics I		
PHYS230	Electromagnetism	200	3	1	Physics I Mathematics IA		
PHYS242	Modern Physics	200	4	3	Physics I Mathematics IA		
PHYS245	Vibrations, Waves and Optics	200	4	3	Physics I Mathematics IA		As a general rule, units at any level should be attempted only after completion of corresponding units at the previous level
PHYS247	Thermodynamics and Kinetic Theory	200	3	3	Physics I Mathematics IA		
PHYS290	Mechanics	200	3	2	Physics I Mathematics IA		
200- and 300-level							
PHYS648	Astronomy	200/300*	6	3	Physics I Mathematics IA		*Approval for taking Astronomy at the 300-level will be at the discretion of the Chairman

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF PHYSICS (Continued)							
300-level							
PHYS310	Advanced Experimental Physics	300	6	3			
PHYS380	Electromagnetism	300	3	2			
PHYS340	Classical Mechanics	300	3	1			
PHYS392	Nuclear Physics	300	3	2	Mod. Phys. 200-level	Quantum Mechanics 300-level	As a general rule, units at any level should be attempted only after completion of corresponding units at the previous level
PHYS344	Quantum Mechanics	300	6	3	Mechanics 200-level Mod. Phys. 200-level		
PHYS346	Introductory Solid State Physics	300	3	2			
PHYS347	Statistical Mechanics	300	6	3			
PHYS349	Astrophysics I	300	3	3			
400-level							
PHYS410	Honours Project	400	20	3			Entry to the Honours year or honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman
PHYS430	Electromagnetism	400	4	1			
PHYS440	Classical Mechanics	400	4	1			
PHYS442	Nuclear Physics	400	4	1			
PHYS444	Quantum Mechanics	400	8	3			
PHYS446	Solid State Physics	400	8	3			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF PHYSICS (Continued)							
PHYS497	Statistical Mechanics	400	4	2			
PHYS499	Astrophysics II	400	4	2			
DEPARTMENT OF PSYCHOLOGY							**Faculty of Social Sciences**
100-level							
PSYC101	Psychology IA	100	6	1			
PSYC102	Psychology IB	100	6	2	Psychology IA		
200-level							
PSYC201	Personality Theory	200	4	1	Psychology IB		
PSYC202	Personality Laboratory	200	3	1	Psychology IB	Personality Theory	
PSYC203	Psychological Measurement	200	2	1	Psychology IB		
PSYC207	Psychology of Development	200	3	1	Psychology IB		
PSYC204	Research Design	200	2	2	Psychology IB		
PSYC205	Learning Theory	200	4	2	Psychology IB		
PSYC206	Learning Laboratory	200	3	2	Psychology IB	Learning Theory	
PSYC208	Psychological Testing	200	3	2	Psychology IB		

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
DEPARTMENT OF PSYCHOLOGY (Continued)							
300-level							
PSYC320	*Psychological Theory A*	300	3	1	*		Compulsory for entry to Psychology IV (Honours)
PSYC322	*Social Psychology*	300	6	1	*		
PSYC311	*Design and Analysis A*	300	3	1	* Psychological Measurement Research Design		Strongly recommended for potential Psychology IV students
PSYC312	*Counselling Psychology*	300	6	1	*Personality Theory		Desirable Pre-requisite: Psychological Testing
PSYC313	*Experimental and Physiological Psychology*	300	6	1	*		
PSYC318	*Issues in Psychology A*	300	3	1	*		
PSYC321	*Psychological Theory B*	300	3	2			Compulsory for entry to Psychology IV (Honours)
PSYC314	*Design and Analysis B*	300	3	2	*Design and Analysis A		Strongly recommended for potential Psychology IV students
PSYC315	*Psychology of Abnormality*	300	6	2	*Personality Theory		Desirable Pre-requisite: Psychological Testing.
PSYC316	*Individual Differences*†	300	6	2	*		

* See note p. 140.

† Not to be offered in 1976.

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
PSYC317	*Industrial Psychology*	300	6	2	*		Desirable Pre-requisites: Psychological Measurement, Psychological Testing and Social Psychology
PSYC319	*Issues in Psychology B*	300	3	2	*		
400-level							
PSYC401	Psychology IV (Honours)	400	48	3	12 credit points of Psychology at 100-level; 24 credit points of Psychology at 200-level; 48 credit points of Psychology at 300-level		Entry to the Honours year or Honours subjects shall be determined by the Academic Senate on the advice of the Departmental Chairman

* Pre-requisites for all 300-level courses are:
(i) 16 credit points of 200-level Psychology for Pass students intending to do a major sequence in Psychology;
(ii) 24 credit points of 200-level Psychology for intending Honours students;
(iii) 9 credit points of 200-level Psychology for other students entering 300-level Psychology courses.

DEPARTMENT OF SOCIOLOGY **Faculty of Social Sciences**

100-level							
SOC100	Sociology I	100	12	3			

Number	Subject	Level	Credit Points	Session Offered	Pre-requisite	Co-requisite	Remarks
200-level							
SOC201	*Sociology IIA: Central Themes in Sociology* (1) *Sociological Theory* (2) *Sociological Method I*	200	9	1	Sociology I		Students are required to do both (1) and (2)
SOC211	*Sociology IIB: Theory and Research in Sociology* (1) *Special Area Options* *Option 1: Belief Systems, Ideologies* *Option 2: Structure and Dynamics of Small Groups* *Option 3: Time, Work and Leisure* (2) *Sociological Method II*	200	9	2	Sociology IIA		Students are to do *one* of the Special Area Options and Sociological Method II
SOC220	*Sociology II Advanced*	200	6	3	Completion of Sociology I at credit level	Sociology IIA Sociology IIB	

SCHEDULE B

Commerce

Set out below are the subjects that may be taken in the Commerce course. Additional details relating to the subjects listed—such as co- and pre-requisites—are set out in Schedule A.

SCHEDULE B – 1

Prescribed subjects for all BCom candidates:

Number	Level	Subject	Credit Points
ACCY100	100	Accounting & Financial Management IA	6
ACCY110	100	Accounting & Financial Management IB	6
ECON101	100	Economics I	6
ECON111	100	Economics II	6
ECON121	100	Quantitative Methods I*	6
ECON122	100	Quantitative Methods II*	6

* Accountancy students may substitute a mathematics course approved by the Chairman of the Department of Accountancy for Quantitative Methods I and II.

SCHEDULE B – 2

Further Subjects Required for the Specialisation in Accountancy*

ACCY160	100	Law in Society	6
ACCY211	200	Accounting & Financial Management IIA	6
ACCY201	200	Accounting & Financial Management IIB	6
ACCY221	200	Business Finance	6
ACCY231	200	Information Systems	6
ACCY302	300	Accounting & Financial Management IIIA	12
ACCY312	300	Accounting & Financial Management IIIB	12
		One further subject selected from those offered by the Accountancy Department. (With approval of Departmental Chairman, this subject may be selected from any of the subjects in Schedule A)	6

SCHEDULE B – 3

Further subjects Required for the Specialisation in Economics*

ECON203	200	*Macroeconomics*	6
ECON213	200	*Microeconomics*	6
ECON204	200	*Public Finance*	6
ECON214	200	*International Economics*	6
ECON221	200	Quantitative Methods III	6
ECON222	200	Quantitative Methods IV	6

Plus *three* of the following options:

Number	Level	Subject	Credit Points
ECON302	300	Comparative Economic Systems	8
ECON311	300	Natural Resource Economics	8
ECON312	300	Industrial Economics	8
ECON303	300	Economic Development Issues	8
ECON304	300	Economic Policy	8
ECON305	300	Economic Development Planning	8
ECON313	300	Transport Economics	8
ECON314	300	Urban & Regional Economics	8
ECON321	300	Econometrics	8
ECON322	300	Mathematical Economics	8
ECON323	300	Econometric Models	8

* NOTE: The Chairman of the Department of Accountancy, in the case of Schedule B – 2, or the Chairman of the Department of Economics, in the case of Schedule B – 3, may approve a candidate enrolling for a subject with a value of at least 6 credit points from Schedule A in place of one of the subjects listed in the relevant Schedule B – 2 or B – 3.

SUBJECTS PRINTED IN ITALICS IN SCHEDULE B HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE RELEVANT DEPARTMENT TO CONFIRM THAT THESE SUBJECTS WILL BE OFFERED IN 1976.

SCHEDULE C

Engineering

The following pages set out the prescribed courses to be taken in Engineering. Additional details relating to the subjects listed—such as co- and pre-requisites—are set out in Schedule A.

Normal Structure and Study Patterns

In the operation of the course, subjects are scheduled so that it may be completed by *either*

(i) 4 years of full-time study, *or*

(ii) 5 years of part-time study, followed by 1 year of full-time study, *or*

(iii) 7 years of part-time study, *or*

(iv) 6 years of part-time study if 6 years of acceptable civil engineering practice work is obtained.

It is anticipated that the first year and stage of the new courses will be introduced in 1976. Students enrolled prior to 1976 in the "old" Civil Engineering courses should consult Schedule C in the *Bachelor Degree Requirements* document approved by Council in 1975 and *The University of Wollongong Handbook 1975* for details of these courses.

1. BACHELOR OF ENGINEERING—CIVIL ENGINEERING

RECOMMENDED PROGRAMME FOR PATTERN (1)

Year 1 of Attendance

Session 1		Session 2	
CIVL191	Building Construction	CIVL111	Introduction to Design C
CHEM101	Chemistry 1A	CIVL123	Dynamics for Civil Eng.
CIVL192	Civil Eng. Construction I	MATH101	Maths 1A
CIVL171	Eng. Surveying I	CIVL142	Materials 1C
MATH101	Maths 1A	PHYS142	Fundamentals of Physics B
PHYS142	Fundamentals of Physics B	CIVL193	Excursions I
CIVL122	Mechanics & Structures	CIVL172	Eng. Survey Camp†

NOTE: THE CIVIL ENGINEERING COURSES HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE DEPARTMENT OF CIVIL ENGINEERING TO CONFIRM THAT THESE COURSES WILL BE OFFERED IN 1976.

Year 2 of Attendance

Session 1		Session 2	
ELEC291	Applied Elect. I	ELEC291	Applied Elect. I
CIVL294	Civil Eng. Construction 2	CIVL282	Computational Techniques in Civil Eng. 2
CIVL281	Computational Techniques in Civil Eng. 1	CIVL226	Eng. Mechanics 2
CIVL225	Eng. Mechanics 1	CIVL231	Hydraulics 1
CIVL295	Experimental Eng. 1C	CIVL243	Materials 2C
CIVL251	Strength of Materials 1	CIVL252	Strength of Materials 2
CIVL273	Eng. Surveying 2	CIVL213	Structural Design 1
CIVL296	Excursions 2	CIVL172	Eng. Survey Camp*

Year 3 of Attendance

CIVL397	Civil Eng. Construction 3	CIVL327	Eng. Mechanics 4
CIVL326	Eng. Mechanics 3	CIVL374	Eng. Surveying 3
MECH241	Thermodynamics 1	CIVL334	Hydraulics 3
CIVL332	Hydraulics 2	CIVL344	Materials 3C
CIVL362	Soil Mechanics 1	CIVL363	Soil Mechanics 2
CIVL312	Civil Eng. Design	CIVL314	Structural Design 2
CIVL353	Structures 1C	CIVL354	Structures 2C
CIVL398	Excursions 3	MECH391	Heat Transfer for Civil Eng.
		CIVL172	Eng. Survey Camp*
	300-Level Electives	CIVL399	Industrial Experience

Year 4 of Attendance

CIVL401	Civil Eng. Thesis	CIVL401	Civil Eng. Thesis
CIVL481	Eng. Management 1	CIVL482	Eng. Management 2
CIVL490	Excursions 4		
	400-Level Electives		400-Level Electives

300-LEVEL ELECTIVES

(May also be taken as 400-level)

CIVL784	Introductory Modern Languages (if available—e.g. French, Italian)
CIVL781	Coastal Engineering
CIVL782	Geology for Civil Engineers
CIVL783	Roads Engineering

* Alternative time for survey camp.

400-LEVEL ELECTIVES

CIVL410	Civil Eng. Practice 1
CIVL411	Civil Eng. Practice 2
CIVL412	Civil Eng. Practice 3
CIVL413	Civil Eng. Practice 4
CIVL415	Civil Eng. Practice 5
CIVL416	Civil Eng. Practice 6
CIVL445	Civil Eng. Materials 1
CIVL446	Civil Eng. Materials 2
CIVL491	Computer Applications in Civil Eng. 1
CIVL492	Computer Applications in Civil Eng. 2
CIVL475	Eng. Surveying 4
CIVL463	Foundation Engineering
CIVL434	Hydraulic Engineering
CIVL493	Public Health Engineering
CIVL464	Soil Mechanics 3
CIVL455	Structures 3
CIVL456	Structures 4
CIVL417	Structural Design 3
CIVL486	The Civil Engineer & the Environment
CIVL487	Town Planning
CIVL488	Traffic Engineering & Transportation

RECOMMENDED PROGRAMME FOR PATTERN (IV)

Year 1 of Attendance

Session 1		Session 2	
CIVL122	Mechanics & Structures	CIVL111	Introduction to Design C
CIVL191	Building Construction	CIVL123	Dynamics for Civil Eng.
MATH101	Maths 1A	MATH101	Maths 1A

Year 2 of Attendance

CIVL192	Civil. Eng. Construction 1	CIVL142	Materials 1C
CIVL171	Eng. Surveying 1	PHYS142	Fundamentals of Physics B
CHEM101	Chemistry 1A	CIVL193	Excursions 1
PHYS142	Fundamentals of Physics B	CIVL172	Eng. Survey Camp*

Year 3 of Attendance

CIVL281	Comp. Tech. in Civ. Eng. 1	CIVL282	Comp. Tech. in Civ. Eng. 2
CIVL251	Strength of Materials 1	CIVL213	Structural Design 1
CIVL225	Eng. Mechanics 1	CIVL226	Eng. Mechanics 2
CIVL296	Excursions 2		

* Alternative times for survey camp.

Year 4 of Attendance

Session 1		Session 2	
ELEC291	Applied Elect. 1	ELEC291	Applied Elect. 1
CIVL295	Experimental Eng. 1C	CIVL231	Hydraulics 1
CIVL273	Eng. Surveying 2	CIVL243	Materials 2C
CIVL294	Civil Eng. Construction 2	CIVL252	Strength of Materials 2
		CIVL172	Eng. Survey Camp†

† Alternative times for survey camp.

Year 5 of Attendance

CIVL332	Hydraulics 2	CIVL334	Hydraulics 3
CIVL362	Soil Mechanics 1	CIVL344	Materials 3C
CIVL353	Structures 1C	CIVL374	Eng. Surveying 3
MECH241	Thermodynamics 1	CIVL399	Industrial Experience
CIVL398	Excursions 3		300-Level Elective

Year 6 of Attendance*

CIVL326	Eng. Mechanics 3	CIVL482	Eng. Management 2
CIVL312	Civil Eng. Design	CIVL401	Civil Eng. Thesis
CIVL481	Eng. Management 1		
CIVL401	Civil Eng. Thesis		
CIVL490	Excursions 4		
	300-or 400-Level Electives		300-or 400-Level Electives

* May be taken over 1 or 2 years; vacation at end of Year 5 may be used for Thesis commencement.

300-LEVEL ELECTIVES

CIVL327	Engineering Mechanics 4
CIVL397	Civil Eng. Construction 3
CIVL363	Soil Mechanics 2
CIVL314	Structural Design 2
CIVL354	Structures 2C
MECH391	Heat Transfer for Civil Eng.
	Introductory Modern Lang.
CIVL781	Coastal Engineering
CIVL782	Geology for Civil Eng.
CIVL783	Roads Engineering

400-LEVEL ELECTIVES

CIVL410	Civil Eng. Practice 1
CIVL411	Civil Eng. Practice 2
CIVL412	Civil Eng. Practice 3
CIVL413	Civil Eng. Practice 4
CIVL415	Civil Eng. Practice 5
CIVL416	Civ. Eng. Practice 6
CIVL417	Structural Design 3
CIVL434	Hydraulic Eng.
CIVL445	Civil Eng. Materials 1
CIVL446	Civil Eng. Materials 2
CIVL455	Structures 3
CIVL456	Structures 4
CIVL463	Foundation Eng.
CIVL464	Soil Mechanics 3
CIVL475	Eng. Surveying 4
CIVL491	Computer Application in Civ. Eng. 1
CIVL492	Computer Application in Civ. Eng. 2
CIVL493	Public Health Eng.
CIVL486	The Civil Eng. & the Environment
CIVL487	Town Planning
CIVL488	Traffic Engineering & Transportation

2. BACHELOR OF ENGINEERING—ELECTRICAL ENGINEERING

(i) FULL-TIME COURSE*

Year 1

Session 1		Session 2	
Electrical Engineering:		*Electrical Engineering:*	
ELEC101	*Electrical Engineering 1*	ELEC101	*Electrical Engineering 1*
Mathematics:		ELEC531	*Computers 1*
MATH101	Mathematics IA	ELEC551	*Instrumentation and Measurement*
Science:		Mathematics:	
PHYS141	*Fundamentals of Physics A*	MATH101	Mathematics IA
PHYS142	*Fundamentals of Physics B*	Science:	
CHEM101	Chemistry 1A	PHYS141	*Fundamentals of Physics A*
Engineering:		PHYS142	*Fundamentals of Physics B*
	Engineering Option‡	Engineering:	
			Engineering Option‡

*** NOTE: THE SUBJECTS IN ITALICS IN THE FULL-TIME ELECTRICAL ENGINEERING COURSE HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE DEPARTMENT TO CONFIRM THAT THESE SUBJECTS WILL BE OFFERED IN 1976.**

‡ Engineering Options 1976: 42 hrs of Engineering Drawing and Design and 42 hrs of Statics and Dynamics.

Should such service courses not be available in 1976 it is proposed that these options be selected from: CIVL121 Applied Mechanics; CIVL122 Mechanics & Structures; CIVL123 Dynamics for Civil Engineers; CIVL111 Introduction to Design C; or MECH111 Design I.

Year 2

Session 1	Session 2
Electrical Engineering:	Electrical Engineering:
ELEC201 Circuit Theory 1	ELEC202 Circuit Theory 2
ELEC251 Laboratory 2	ELEC221 E.C. & D. 1
Physics:	ELEC211 Electronics 1
PHYS242 Modern Physics	Physics:
PHYS245 Vibrations, Waves & Optics	PHYS242 Modern Physics
PHYS230 Electromagnetism	PHYS245 Vibrations, Waves & Optics
Mathematics:	PHYS260 Experimental Physics B
MATH201 Mathematics IIA	Mathematics:
MATH202 *Mathematics IIS*	MATH201 Mathematics IIA
Engineering: (1)* one subject	MATH202 *Mathematics IIS*
General Studies: two subjects	Engineering: one subject

Year 3

Electrical Engineering:	Electrical Engineering:
ELEC631 Computers 2	ELEC342 Control 2
ELEC341 Control 1	ELEC313 Electronics 3
ELEC312 Electronics 2	ELEC322 E.C. & D. 2
ELEC352 Laboratory 3A	ELEC354 Laboratory 3C
ELEC353 Laboratory 3B	ELEC355 Laboratory 3D
Mathematics:	Mathematics:
MATH301 Mathematics IIIA	MATH301 Mathematics IIIA
Engineering: (1) one subject	Engineering: one subject
General Studies: two subjects	General Studies: two subjects

Year 4

Electrical Engineering:	Electrical Engineering:
ELEC403 Circuit Theory 3	Elective (2)*
Elective	ELEC423 E.C. & D. 3
ELEC731 Computers 3	Elective
ELEC461 Communications 1	Elective
ELEC456 Laboratory 4	Elective
ELEC457 Thesis	Thesis
General Studies: Two subjects	

* See notes (1) and (2) at top of p. 150.

(1) Subjects selected must be from those offered by the Departments of Mechanical and Civil Engineering and be approved by the relevant Departmental Chairman. The subjects must meet the pre-requisite and co-requisite requirements.

(2) With the approval of the Departmental Chairman, one Electrical Engineering elective may be replaced by a suitable equivalent subject offered by another department.

NOTE: Industrial Experience—Full-time BE students must accumulate at least 12 weeks of approved industrial experience, documented in the form of employment reports and preferably in the period between third and fourth year.

2. BACHELOR OF ENGINEERING—ELECTRICAL ENGINEERING

(ii) PART-TIME COURSE*

NOTE: Subjects in the course leading to a BE in Electrical Engineering are so scheduled that it may be completed in four years of full-time study. It may also be undertaken on a part-time basis, in which case the duration will depend upon the particular circumstances of the student.

Students in approved, full-time industrial employment become eligible to include Industrial Electives in their program in place of otherwise prescribed or elective course material.

Each elective is worth 6 credit points and with the approval of the Departmental Chairman, a student may include Industrial Elective I in his program after he has completed at least one full year of suitable industrial experience. Similarly, Industrial Electives 2, 3, 4 and 5 may be included after 2, 3, 4 and 5 years respectively of approved experience.

Thus a student completing his course after five years of part-time study and 1 year of full-time study could include in his course, Industrial Electives to the value of 24 credit points.

Industrial Electives are related to the student's current full-time employment and a student enrolled in an Industrial Elective subject is required to submit written reports to his university departmental supervisors and to participate in seminars as scheduled from time to time.

In addition to the university supervisor, the student's employer will be asked to nominate an industrial supervisor to advise the student in report and seminar preparation and to ensure that company policy on confidentiality is observed.

***NOTE: THE PART-TIME COURSE IN ELECTRICAL ENGINEERING HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE THEREFORE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE DEPARTMENT TO CONFIRM THAT IT WILL BE OFFERED IN 1976.**

The written submissions and seminars will deal with a critical analysis and reporting of general (or nominated specific) aspects of the student's employment. Subject to confidentiality requirements these may cover technical, organisational and management aspects of the employer's industry.

Preferred substitutions

Industrial Elective 1	may be substituted for 84 hrs of Chemistry
Industrial Elective 2	may be substituted for 84 hrs of Physics (Level 2)
Industrial Elective 3	may be substituted for 42 hrs of Engineering (non-electrical) plus 42 hrs of Electrical Laboratory
Industrial Elective 4	may be substituted for 84 hrs of General Studies
Industrial Elective 5	may be substituted for 84 hrs of 400-level electives

On the recommendation of the Departmental Committee the Chairman may approve alternative subject substitutions.

Since 1975 all part-time students enrolling for the first time have been enrolled in a part-time BE programme.

Stage 1 of this programme comprises:

Stage 1

Session 1		*Session 2*	
MATH101	Mathematics 1A	MATH101	Mathematics 1A
PHYS142	*Fundamentals of Physics B*	PHYS142	*Fundamentals of Physics B*
ELEC101	*Electrical Engineering 1*	ELEC101	*Electrical Engineering 1*

Students enrolling in the later stages of a part-time BE programme are advised to contact the Department for details.

3. BACHELOR OF SCIENCE (ENGINEERING)—ELECTRICAL ENGINEERING

PART-TIME COURSE

No new enrolments will be accepted in this course. The programme for re-enrolling students is set out below:

Stage 3

Session 1	Session 2
Electrical Engineering:	Electrical Engineering:
ELEC201 Circuit Theory 1	ELEC202 Circuit Theory 2
ELEC251 Laboratory 2	ELEC211 Electronics 1
MATH281 Mathematics IIE	MATH281 Mathematics IIE
General Studies	General Studies

Stage 4

Session 1	Session 2
Electrical Engineering:	Electrical Engineering:
ELEC312 Electronics 2	ELEC313 Electronics 3
ELEC631 Computers 2	ELEC221 Energy Conversion & Distribution 1
Engineering II (1)	ELEC353 Laboratory 3B
General Studies	Engineering II

Stage 5

Electrical Engineering:	Electrical Engineering:
ELEC341 Control 1	ELEC342 Control 2
ELEC403 Circuit Theory 3	ELEC322 Energy Conversion & Distribution 2
ELEC355 Laboratory 3D	ELEC354 Laboratory 3C
Engineering III (1)	General Studies (1 subject)
General Studies (1 subject)	

Stage 6

Electrical Engineering: Elective	Electrical Engineering: ELEC423 Energy Conversion and Dist. 3
ELEC461 Communications 1	Elective
ELEC731 Computers 3	Elective
ELEC456 Laboratory 4	Elective

(1) Eng. II and Eng. III comprise the same units as for the Bachelor of Engineering course. Subjects selected must be approved by the Departmental Chairman.

NOTE: Industrial Training—For the BSc(Eng) degree a minimum of three years' approved industrial training, concurrent with the course, is required.

4. BACHELOR OF ENGINEERING—MECHANICAL ENGINEERING

(i) FULL-TIME PROGRAMME

Year 1

CIVL121	Applied Mechanics I	MECH111	Design I
MATH101	Mathematics IA	MATH101	Mathematics IA
PHYS141	Fundamentals of Physics A	PHYS141	Fundamentals of Physics A
PHYS142	Fundamentals of Physics B	PHYS142	Fundamentals of Physics B
CHEM101	Chemistry IA	CIVL141	Materials I

Year 2

Session 1		Session 2	
MATH281	Mathematics IIE	MATH281	Mathematics IIE
MECH251	Experimental Engng. I	MECH231	Fluid Mechanics I
ELEC291	Applied Electricity I	ELEC291	Applied Electricity I
CIVL254	Strength of Materials	CIVL242	Materials II
MECH241	Thermodynamics I	CIVL212 and MECH212	Design II
MECH223	Engineering Dynamics	MECH224	System Dynamics
	General Studies		General Studies

Year 3

MECH342	Thermodynamics II	MECH344	Heat Transfer
MECH361	Control Systems I	MECH362	Control Systems II
CIVL313	Design III	MECH363	Systems Analysis I
MECH332	Fluid Mechanics II	MECH333	Fluid Mechanics IIIA
CIVL351	Structures I	MECH353	Experimental Engng. II
MECH325	Machine Dynamics		Elective
	Elective		Elective

Year 4

MECH401	Thesis	MECH401	Thesis
CIVL481	Engng. Management I	CIVL482	Engineering Managment II
MECH416	Mechanical Engng. Design		

Plus at least 24 credit points (spread over two Sessions) selected from the following electives†:

Electives which may be taken in 3rd or 4th Year

CIVL324	Applied Mechanics IV	CIVL325	Applied Mechanics V
MECH473	Materials Handling Systems I	MECH474	Materials Handling Systems II
MECH471	Industrial Water Pollution Identification	MECH472	Industrial Water Pollution Control
ELEC292	Applied Electricity II	ELEC292	Applied Electricity II
CIVL362	Soil Mechanics I	CIVL343	Materials III
CIVL371	Surveying I	CIVL452	Structures II
	General Studies		General Studies

NOTE: THESE NEW MECHANICAL ENGINEERING COURSES HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OF THE DEPARTMENT TO CONFIRM THAT THEY WILL BE OFFERED IN 1976.

† Subject to approval of Chairman of Department.

Electives which may be taken in 4th Year only

MECH423	Applied Dynamics I	MECH424	Applied Dynamics II
MECH443	Thermodynamics III	MECH434	Fluid Mechanics IV
CIVL444	Materials IV	CIVL453	Structures III
MECH464	Systems Analysis II	MECH465	Systems Analysis III
MECH475	Nuclear Power Technology I	MECH476	Nuclear Power Technology II
		MECH415	Optimum Design

NOTE: Full-time students should be aware that industrial experience is an integral part of the course.

4. BACHELOR OF ENGINEERING—MECHANICAL ENGINEERING

(ii) PART-TIME PROGRAMME

Session 1		Session 2	
			Stage 1
CIVL121	Applied Mechanics I	MECH111	Design I
MATH101	Mathematics IA	MATH101	Mathematics IA
			Stage 2
PHYS141	Fundamentals of Physics A	PHYS141	Fundamentals of Physics A
PHYS142	Fundamentals of Physics B	PHYS142	Fundamentals of Physics B
CHEM101	Chemistry IA	CIVL141	Materials I
			Stage 3
MATH281	Mathematics IIE	MATH281	Mathematics IIE
CIVL254	Strength of Materials	CIVL212 and MECH212	Design II
MECH223	Engineering Dynamics	MECH224	System Dynamics
			Stage 4
MECH251	Experimental Engng. I	MECH231	Fluid Mechanics I
ELEC291	Applied Electricity I	ELEC291	Applied Electricity I
MECH241	Thermodynamics I	CIVL242	Materials II
	General Studies		General Studies
			Stage 5
MECH342	Thermodynamics II	MECH344	Heat Transfer
MECH361	Control Systems I	MECH363	Systems Analysis I
MECH332	Fluid Mechanics II	MECH333	Fluid Mechanics IIIA
MECH325	Machine Dynamics	MECH353	Experimental Engng. II
		Year 6 (full-time or two part-time stages)	
MECH401	Thesis	MECH401	Thesis
MECH416	Mechanical Engng. Design		

Plus at least 52 credit points (spread over two sessions) selected from the following electives†:

CIVL324	Applied Mechanics IV	CIVL325	Applied Mechanics V
MECH423	Applied Dynamics I	MECH424	Applied Dynamics II
MECH473	Materials Handling Systems I	MECH474	Materials Handling Systems II
MECH471	Industrial Water Pollution Identication	MECH472	Industrial Water Pollution Control
ELEC292	Applied Electricity II	ELEC292	Applied Electricity II
CIVL351	Structures I	MECH362	Control Systems II
CIVL313	Design III	CIVL452	Structures II
CIVL481	Engineering Management I	CIVL482	Engineering Management II
MECH443	Thermodynamics III	CIVL343	Materials III
CIVL444	Materials IV	MECH434	Fluid Mechanics IV
MECH464	Systems Analysis II	MECH465	Systems Analysis III
MECH475	Nuclear Power Technology I	MECH476	Nuclear Power Technology II
CIVL371	Surveying I	MECH415	Optimum Design
CIVL361	Soil Mechanics I		General Studies
	General Studies		

NOTE: For students in full-time employment who are enrolled on a part-time basis, each year of appropriate employment that is supervised and approved by the Chairman of the Department of Mechanical Engineering will be credited as three hours from one session with a maximum accreditation of twenty four credit points of electives for the course. Before each year's accreditation is given, a student must submit a report of his employment for the year.

Students who do not gain accreditation for any of their employment will be required to obtain industrial experience as for a full-time student.

5. BACHELOR OF ENGINEERING—MINING ENGINEERING

The course in Mining Engineering offered at Wollongong leads to the degree of Bachelor of Engineering in Mining Engineering. The course is presently being negotiated and any enquiries concerning the details of the subjects offered should be made to the Chairman of the Department of Civil Engineering.

6. BACHELOR OF SCIENCE (ENGINEERING)—CIVIL, ELECTRICAL, MECHANICAL AND MINING ENGINEERING—PART-TIME COURSE

New enrolments will not be accepted for the BSc(Eng) courses in 1976.

These courses are being phased out and will not be offered after 1980. They are being replaced by a BE course. Students at present enrolled in the BSc(Eng) courses will be given the opportunity of transferring to the BE course if they so desire.

† Subject to approval of Chairman of Department.

SCHEDULE D

Metallurgy

The following pages set out:

I. The prescribed course to be taken in Metallurgy by students enrolled prior to 1976.

II. The prescribed course in Metallurgy to be introduced in 1976.*

It is proposed that the 1st year of the full-time course and the 1st stage of the part-time course should be introduced in 1976. Thereafter, the new course will be introduced in successive years as required by the full-time students and the equivalent stages of the part-time course will be implemented as the new subjects are introduced for the full-time course. Where necessary, appropriate sections of the present part-time course will be provided in addition to the new subjects so that no students will be disadvantaged.

Additional details relating to the subjects listed—such as co- and pre-requisites **and session offered**—are set out in Schedule A.

1. (A) BACHELOR OF METALLURGY—FULL-TIME PROGRAMME

FOR RE-ENROLLING STUDENTS

Year 2

CHEM206	Chemistry for Metallurgists	MATH233	Mathematics IIP
MATH282	Mathematics IIM		General Studies
CIVL216	Design M	METL200	Metallurgy I

Year 3

ELEC291	Applied Electricity		General Studies
		METL300	Metallurgy II

Year 4

CIVL481	Engineering Management I	METL410	Metallurgy III
		METL420	Metallurgy Project
CIVL482	Engineering Management 2		Applied Science/ Engineering Option
	General Studies		

NOTE: Full-time students should be aware that industrial experience is an integral part of the course.

***NOTE: THE METALLURGY COURSE TO BE INTRODUCED IN 1976 HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE DEPARTMENT OF METALLURGY TO CONFIRM THAT THESE COURSES WILL BE OFFERED IN 1976.**

(B) BACHELOR OF METALLURGY—PART-TIME PROGRAMME

Stage 2

PHYS141	Fundamentals of Physics A	PHYS142	Fundamentals of Physics B
CHEM101	Chemistry IA	CHEM102	Chemistry IB

Stage 3

CHEM206	Chemistry for Metallurgists	CIVL216	Design M
MATH282	Mathematics IIM		General Studies

Stage 4

METL200	Metallurgy I	MATH233	Mathematics IIP

Stage 5

METL310	Metallurgy IIA	ELEC291	Applied Electricity 1
			General Studies

Stage 6

METL320	Metallurgy IIB	CIVL482	Engineering Management 2
CIVL481	Engineering Management I		General Studies

II. (A) BACHELOR OF METALLURGY—PART-TIME COURSE

REVISED COURSE FOR STUDENTS ENROLLING IN 1976

Stage 1

MATH101	Mathematics IA	PHYS141	Fundamentals of Physics A
		PHYS142	Fundamentals of Physics B

Stage 2

MATH282	Mathematics IIM*	CHEM102	Chemistry IB
CHEM101	Chemistry IA	METL121	Nature of Materials

Stage 3

MATH233	Mathematics IIP	METL241	Fluid Flow
CHEM203	Physical Chemistry IIA	METL251	Structure of Metals I
METL211	Thermodynamics I	METL252	Struct. & Mech. Props I

* In consultation with Chairman of Department a student wishing to take the full Mathematics II may be permitted to do so and the additional work will be credited to option requirements.

Stage 4

CIVL121	Applied Mechanics I	METL342	Heat Transfer
ELEC291	Applied Electricity I	METL271	Transformations I
METL281	Extractive Metallurgy	METL231	Mechanics of Solids I
METL311	Thermodynamics II		

Stage 5

CIVL216	Design M	METL351	Structure of Metals II
	Option	METL321	Physics of Metals I
METL341	Mass Transfer	METL331	Mechanics of Solids II
METL361	Reaction Engineering I		

Stage 6

	Option	METL381	Extraction Engineering
METL312	Electrochemical Processes	METL352	Industrial Metallurgy
METL301	Ceramics	METL353	Thermomechanical Processing
METL481	Mineral Engineering	METL391	Metallurgy Project I

(B) BACHELOR OF METALLURGY—PART-TIME ACCELERATED COURSE

Stage 1

MATH101	Mathematics IA	PHYS141	Fundamentals of Physics A
		PHYS142	Fundamentals of Physics B

Stage 2

MATH282	Mathematics IIM*	CHEM102	Chemistry IB
CHEM101	Chemistry IA	METL121	Nature of Materials

Stage 3

MATH233	Mathematics IIP	METL241	Fluid Flow
CHEM203	Physical Chemistry IIA	METL251	Structure of Metals I
METL211	Thermodynamics I	METL252	Struct. & Mech. Props. I

Stage 4

CIVL121	Applied Mechanics I	METL342	Heat Transfer
ELEC291	Applied Electricity I	METL271	Transformations I
METL281	Extractive Metallurgy	METL231	Mechanics of Solids I
METL311	Thermodynamics II		

* See note on p. 157.

Year 3

CIVL216	Design M	METL381	Extraction Engineering
	Option	METL351	Structure of Metals II
METL341	Mass Transfer	MFTL321	Physics of Metals I
METL361	Reaction Engineering I	METL331	Mechanics of Solids II
METL312	Electrochemical Processes	METL352	Industrial Metallurgy
METL301	Ceramics	METL353	Thermomechanical Processing
METL481	Mineral Engineering	METL391	Metallurgy Project I

(C) BACHELOR OF METALLURGY—FULL-TIME COURSE

Year 1

MATH101	Mathematics IA	CHEM102	Chemistry IB
PHYS141	Fundamentals of Physics A	CIVL121	Applied Mechanics I
PHYS142	Fundamentals of Physics B	METL121	Nature of Materials
CHEM101	Chemistry IA		

Year 2

MATH282	Mathematics IIM*	METL241	Fluid Flow
MATH233	Mathematics IIP	METL251	Structure of Metals I
CHEM203	Physical Chemistry IIA	METL271	Transformations I
ELEC291	Applied Electricity I	METL231	Mechanics of Solids I
METL211	Thermodynamics I	METL252	Struct. & Mech. Properties I
METL311	Thermodynamics II		
METL281	Extractive Metallurgy		

Year 3

CIVL216	Design M	METL301	Ceramics
	Option	METL321	Physics of Metals I
METL342	Heat Transfer	METL351	Structure of Metals II
METL341	Mass Transfer	METL331	Mechanics of Solids II
METL361	Reaction Engineering I	METL352	Industrial Metallurgy
METL312	Electrochemical Processes	METL391	Metallurgy Project I

Year 4

	Option
	Metallurgy Subjects†
METL491	Metallurgy Project II

(D) BACHELOR OF METALLURGY—PART-TIME/FULL-TIME COURSE

Stage 1

MATH101	Mathematics I	PHYS141	Fundamentals of Physics A
		PHYS142	Fundamentals of Physics B

Stage 2

MATH282	Mathematics IIM*	CHEM102	Chemistry IB
CHEM101	Chemistry IA	METL121	Nature of Materials

Year 2

MATH233	Mathematics IIP	METL281	Extractive Metallurgy
CHEM203	Physical Chemistry IIA	METL251	Structure of Metals I
ELEC291	Applied Electricity I	METL271	Transformations I
CIVL121	Applied Mechanics I	METL231	Mechanics of Solids I
METL211	Thermodynamics I	METL252	Struct. & Mech. Properties I
METL311	Thermodynamics II		
METL241	Fluid Flow		

Year 3

CIVL216	Design M	METL301	Ceramics
	Option	METL321	Physics of Metals I
METL342	Heat Transfer	METL351	Structure of Metals II
METL341	Mass Transfer	METL331	Mechanics of Solids II
METL361	Reaction Engineering I	METL352	Industrial Metallurgy
METL312	Electrochemical Processes	METL391	Metallurgy Project I

Year 4

METL491	Option
	Metallurgy Subjects†
	Metallurgy Project II

* See note on p. 157.

† *To be selected from 400-level Metallurgy subjects.*

METL 481	Mineral Engineering	METL 471	Transformations II
METL 482	Iron and Steelmaking	METL 421	Physics of Metals II
METL 461	Reaction Engineering II	METL 452	Structure and Mechanical Props. II
METL 472	Solidification	METL 453	Structure and Mechanical Props. III
METL 451	Structure of Metals III	METL 431	Fracture

together with other Metallurgy subjects which may be available from time to time.

List of subjects from which options in Metallurgy courses may be chosen.

NOTE: Additional subjects may be added from time to time and approval to include subjects not listed may be given by the Chairman of the Department of Metallurgy.

Department	*Subject*		
Accountancy	ACCY160	Law in Society	
	ACCY262	Industrial Law	Pre-requisite
	ACCY161	Business Law 1	
	ACCY251	Taxation Law	Law in Society
Biology	BIOL101	General & Human Biology	
Chemistry	CHEM204	Physical Chemistry IIB	
	CHEM201	Inorganic Chemistry II	
	CHEM301	Analytical Chemistry IIIA	
Civil Engineering	CIVL481	Engineering Management I	
	CIVL482	Engineering Management II	
	CIVL219	Experimental Stress Analysis	
Economics	ECON111	Economics II	Sequence of Subjects
	ECON213	Microeconomics	
	ECON312	Industrial Economics	
Electrical Engineering	ELEC293	Computers IM	
Geology	GEOL101	Geology 101	
	GEOL111	*or* Geology 111	
	GEOL102	Geology 102	
	GEOL112	*or* Geology 112	
Mechanical Engineering	MECH363	Systems Analysis I	
	MECH464	Systems Analysis II	
Physics	PHYS648	Astronomy	
Psychology	PSYC101	Psychology IA	
	PSYC102	Psychology IB	

SCHEDULE E

Science

Set out below in Schedules E–1 and E–2 are the subjects that may be taken in the Science Course. Additional details relating to the subjects listed, such as co- and pre-requisites, are set out in Schedule A.

SCHEDULE E – 1

Subjects Approved by the Faculty of Mathematics*

Number	Subject	Credit Points
100-level		
MATH101	Mathematics IA	12
MATH102	Mathematics IB	12
MATH141	*Computing Science IA*	6
MATH142	*Computing Science IB*	6
MATH143	*Computing Science IC*	6
CHEM101	Chemistry IA	6
CHEM102	Chemistry IB	6
GEOL101	Geology 101	6
GEOL102	Geology 102	6
BIOL101	General and Human Biology	12
PHYS141	*Fundamentals of Physics A*	6
PHYS142	*Fundamentals of Physics B*	6
200-level		
MATH201	Mathematics IIA	12
MATH211	Mathematics IIB	12
MATH221	Mathematics IIC	12
MATH231	Mathematics IID	12
300-level		
MATH301	Mathematics IIIA	12
MATH302	Mathematics IIIB	12
MATH303	Mathematics IIIC	12
MATH311	Mathematics IIID	12
MATH321	Mathematics IIIE	12
MATH322	Mathematics IIIF	12
MATH331	Mathematics IIIG	12
400-level		
MATH401	Mathematics IV (Honours)	48

NOTE: SUBJECTS PRINTED IN ITALICS IN SCHEDULE E HAD NOT BEEN APPROVED BY COUNCIL AT THE TIME OF PRINTING. STUDENTS ARE ADVISED TO CONTACT THE STUDENT ENQUIRIES OFFICE OR THE RELEVANT DEPARTMENT TO CONFIRM THAT THESE SUBJECTS WILL BE OFFERED IN 1976.

* It is anticipated that additional subjects offered by the Departments of Accountancy, Geography, Physics and Psychology will be included in Schedule E – 1 for study in 1976.

SCHEDULE E – 2

Subjects Approved by the Faculty of Science

Number	Subject	Credit Points
100-level		
	BIOLOGY	
BIOL101	General & Human Biology	12
	CHEMISTRY	
CHEM101	Chemistry IA	6
CHEM102	Chemistry IB	6
	GEOGRAPHY	
GEOG191	*Introductory Physical Geography Science*	6
	GEOLOGY	
GEOL101	Geology 101	6
GEOL102	Geology 102	6
GEOL111	Geology 111	6
GEOL112	Geology 112	6
	PHYSICS	
PHYS141	*Fundamentals of Physics A*	6
PHYS142	*Fundamentals of Physics B*	6
PHYS151	*The Art of Physics*	6
	PSYCHOLOGY	
PSYC101	Psychology IA	6
PSYC102	Psychology IB	6
	MATHEMATICS	
MATH101	Mathematics IA	12
MATH102	Mathematics IB	12
MATH141	*Computing Science IA*	6
MATH142	*Computing Science IB*	6
*200-level**		
	BIOLOGY	
CHEM204	Physical Chemistry IIB	6
ELEC294	Intro. Systems Theory for Biologists	6
	CHEMISTRY	
CHEM201	Inorganic Chemistry II	6
CHEM202	Organic Chemistry II	6
CHEM203	Physical Chemistry IIA	6
CHEM204	Physical Chemistry IIB	6
	GEOGRAPHY	
GEOG291	*Biogeography Science*	6

* Psychology subjects at the 200- and 300-levels may be included in Schedule E – 2 in 1976.

Number	Subject	Credit Points
	GEOLOGY	
GEOL201	Geology 201	6
GEOL202	Geology 202	6
GEOL203	Geology 203	6
GEOL204	Geology 204	6
	PHYSICS	
PHYS210	Physics 210	2
PHYS260	Physics 260	2
PHYS230	Physics 230	3
PHYS290	Physics 290	3
PHYS242	Physics 242	4
PHYS245	Physics 245	4
PHYS247	Physics 247	3
	MATHEMATICS	
MATH201	Mathematics IIA	12
MATH211	Mathematics IIB	12
MATH221	Mathematics IIC*	12
MATH231	Mathematics IID	12
MATH233	Mathematics IIP	6
MATH202	*Mathematics IIS*	6

200/300-level

	BIOLOGY	
BIOL601	*Bioenergetics I*	6
BIOL602	*Bioenergetics II*	6
	GEOLOGY	
GEOL605	Geology 205/305	6
GEOL606	Geology 206/306	6
GEOL607	Geology 207/307	6
GEOL608	Geology 208/308	6
GEOL610	Geology 210/310	6
GEOL611	Geology 211/311	6
GEOL612	Geology 212/312	6
GEOL613	Geology 213/313	6
	PHYSICS	
PHYS648	Astronomy	6

300-level‡

	CHEMISTRY	
CHEM301	Analytical Chemistry IIIA†	6
CHEM302	Analytical Chemistry IIIB†	6

* This subject may not be included in Schedule E – 2 in 1976.

† Students taking a single major in Chemistry (4, 300-level subjects) may not take more than two of the subjects marked.

‡ See note on previous page.

Number	Subject	Credit Points
CHEM303	Inorganic Chemistry III*	6
CHEM304	Organic Chemistry IIIA	6
CHEM305	Organic Chemistry IIIB	6
CHEM306	Physical Chemistry IIIA	6
CHEM307	Physical Chemistry IIIB	6
CHEM308	Spectroscopy III*	6
	GEOGRAPHY	
GEOG391	*Fluvial Geography Science*	12
GEOG393	*Coastal Geomorphology Science*	12
	GEOLOGY	
GEOL301	Geology 301	6
GEOL302	Geology 302	6
GEOL303	Geology 303	6
GEOL309	Geology 309	6
	PHYSICS	
PHYS310	Physics 310	6
PHYS380	Physics 380	3
PHYS340	Physics 340	3
PHYS392	Physics 392	3
PHYS344	Physics 344	6
PHYS346	Physics 346	3
PHYS347	Physics 347	6
PHYS349	Physics 349	3
	MATHEMATICS	
MATH301	Mathematics IIIA	12
MATH302	Mathematics IIIB	12
MATH303	Mathematics IIIC†	12
MATH311	Mathematics IIID†	12
MATH321	Mathematics IIIE†	12
MATH322	Mathematics IIIF†	12
MATH331	Mathematics IIIG†	12
MATH377	*Ocean Dynamics*	6

400-level

	CHEMISTRY	
CHEM401	Honours Lectures Part I	6
CHEM402	Honours Lectures Part II	6
CHEM410	Project	36
	GEOLOGY	
GEOL401	Geology 401	48

* See note (†) on p. 164.
† These subjects may not be included in Schedule E – 2 in 1976.

Number	Subject	Credit Points
	PHYSICS	
PHYS410	Physics 410	20
PHYS430	Physics 430	4
PHYS440	Physics 440	4
PHYS442	Physics 442	4
PHYS444	Physics 444	8
PHYS446	Physics 446	8
PHYS497	Physics 497	4
PHYS499	Physics 499	4
	MATHEMATICS	
MATH401	Mathematics IV (Honours)*	48

* This subject may not be included in Schedule E – 2 in 1976.

Description of Subjects

ACCOUNTANCY

100-level

ACCY 100 Accounting and Financial Management IA

First session subject, 6 credit points

The basic concepts of financial model building and information systems, including the double-entry recording system, the accounting cycle, income measurement and financial reporting and an introduction to basic elements of taxation and auditing.

TEXTBOOKS

Carrington, A. S., Battersby, G. B. & Howitt, G. *Accounting—An Information System*. Whitcombe & Tombs, 1975.
Mathews, R. *The Accounting Framework*. 3rd rev. ed. of *Accounting for Economists*. Cheshire, 1972.

ACCY 110 Accounting and Financial Management IB

Second session subject, 6 credit points

Development of basic concepts introduced in *Accounting and Financial Management IA* including management accounting and operations research, corporate reporting, business finance, system design, elementary computer programming and applications.

TEXTBOOKS

As for *Accounting and Financial Management IA*.

ACCY 160 Law in Society

First session subject, 6 credit points

An introduction to the nature of law, the legal system, legal reasoning and the administration of justice, including the commercial, sociological and political implications of the legal environment.

TEXTBOOKS

Lane, P. H. *An Introduction to the Australian Constitution*. Law Book Co., 1974.
Lloyd, D. *The Idea of Law*. Pelican, 1969.
Sawer, G. *The Australian and the Law*. Pelican, 1971.
Vermeesch, R. B. & Lindgren, K. E. *Business Law in Australia*. 2nd ed. Butterworth, 1973.

ACCY 161 Business Law I

Second session subject, 6 credit points

Business law, including law of contract, bailment, trusts, agency, partnership, bankruptcy, sale of goods and hire purchase.

TEXTBOOKS

Vermeesch, R. B. & Lindgren, K. E. *Business Law in Australia*. 2nd ed. Butterworth, 1973.
Partnership Act (N.S.W.) 1892. Government Printer, Sydney.
Sale of Goods Act (N.S.W.) 1923 (as amended). Government Printer, Sydney.

200-level

ACCY 211 Accounting and Financial Management IIA

First session subject, 6 credit points

The design, production and use of accounting and other quantitative information in the planning and control of organisations, with particular reference to manufacturing activities and to long and short-term decision-making and financial planning.

TEXTBOOKS

Chase, R. B. & Aquilano, N. J. *Production and Operations Management.* Irwin, 1973.
Dopuch, N., Birnberg, J. G. & Demski, J. *Cost Accounting.* 2nd internat. ed. Harcourt, Brace, Jovanovich Inc., 1974.
Horngren, C. T. *Cost Accounting: A Managerial Emphasis. 3rd ed.* Prentice-Hall, 1972.

ACCY 201 Accounting and Financial Management IIB

Second session subject, 6 credit points

A critical examination of concepts and problems in income measurement and financial reporting for various forms of undertaking with particular reference to corporate organisations, including associated aspects of auditing and taxation.

TEXTBOOKS

Johnston, T. R., Jager, M. O. & Taylor, R. B. *Company Accounting.* 3rd ed. Butterworth, 1973.
Taylor, R. B. & O'Shea, B. P. *Questions on Company Accounting.* Butterworth, 1974.
The Companies Act 1961 (as amended). Government Printer, Sydney.

ACCY 231 Information Systems

First session subject, 6 credit points

Management information systems, including data collection and processing, internal control and internal reporting. System design and computer applications.

TEXTBOOKS

Couger, J. D. & McFadden, F. R. *Introduction to Computer Based Information Systems.* Wiley, 1975.
Sanders, D. H. *Computers in Business: An Introduction.* 2nd ed. McGraw-Hill, 1972.

ACCY 221 Business Finance

Second session subject, 6 credit points

The finance function, with particular reference to corporate financing, financial policy and financial management including aspects of Australian financial institutions and the development of theories of financial structure.

ACCY 212 Business Organisation and Policy

Second session subject, 6 credit points

The relationship of organisation theories and behavioural considerations to the functions of management and of accounting, with particular reference to organisation structures, communication, motivation, inter-personal and inter-group relationships and decision processes. Corporate strategy, policy formulation and integration of business functions.

TEXTBOOKS

Emery, F. E. *Systems Thinking*. Penguin, 1969.

Leavitt, H. J. *Managerial Psychology*. 3rd ed. Chicago U.P., 1972.

Newman, W. H., Summer, C. E. & Warren, E. K. *The Process of Management*. 3rd ed. Prentice-Hall, 1972.

ACCY 251 Taxation Law

Second session subject, 6 credit points

Income tax law and practice.

TEXTBOOKS

Mannix, E. F. & Harris, D. W. *Australian Income Tax Guide*. 21st ed. Butterworth, 1975.

Mannix, E. F. *Australian Income Tax Leading Cases*. 2nd ed. Butterworth, 1975.

Income Tax Assessment Act, 1936-1975. Australian Government Printer.

ACCY 281 Government Accounting and Financial Management

First session subject, 6 credit points

An introduction to federal, state, regional and local government accounting and financial management including the accounts of government trading corporations and statutory bodies.

TEXTBOOKS

Jay, W. R. C. & Mathews, R. L. eds. *Government Accounting in Australia*. Cheshire, 1968.

Levy, V. M. *Public Financial Administration*. The Law Book Company Ltd., 1972.

The Audit Act 1901 (as amended). The Australian Government Printer, Canberra.

300-level

ACCY 302 Accounting and Financial Management IIIA

First session subject, 12 credit points

Financial Accounting: Advanced aspects of financial accounting and reporting with particular reference to developments in accounting theory and professional standards, including the financial and accounting aspects of mergers and group companies.

TEXTBOOKS

Cohan, A. B. & Wyman, H. E. *Cases in Financial Management*. Prentice-Hall, 1972.
Van Horne, J. C. *Financial Management & Policy*. 3rd ed. Prentice-Hall International, 1975.

ACCY 242 Advanced Auditing

First session subject, 6 credit points

Advanced aspects of auditing, including auditing standards and responsibilities, problems of valuation and verification, organisation and application to various forms of accounting systems including computer systems, and investigations.

TEXTBOOKS

Mautz, R. K. & Sharaf, H. A. *The Philosophy of Auditing*. American Accounting Association, 1961.
Meigs, W. B., Larsen, E. J. & Meigs, R. F. *Principles of Auditing*. 5th ed. Richard D. Irwin, 1973.
Newton, S. W. & Stettler, H. F. *Practice Case for Auditing*. Prentice-Hall, 1966.
Stolle, C. & Bearden, G. *Auditing of Computer-Generated Accounts: A Simulation*. McGraw-Hill, 1971.
Vanasse, R. W. *Statistical Sampling for Auditing and Accounting Decisions: A Simulation*. McGraw-Hill, 1968.

ACCY 261 Business Law II

First session subject, 6 credit points

Business law, including company law, trade practices, banker and customer and insurance.

TEXTBOOKS

Afterman, H. B. & Baxt, R. *Cases and Materials on Corporations and Associations*. Butterworth, 1972.
Ford, H. A. J. *Principles of Company Law*. Butterworth, 1974.
Companies Act (N.S.W.) 1961 (as amended). Government Printer, Sydney.
Trade Practices Act 1974. Australian Government Printer.

ACCY 262 Industrial Law

First session subject, 6 credit points

An examination of the Commonwealth and State systems, the relationship between them and the effect on industrial relations of the Australian Federal system; with particular reference to the constitution of the tribunals, their respective powers and the effect of awards, agreements and other regulatory activities.

TEXTBOOKS

Cullen, C. L. & Macken, J. J. *An Outline of Industrial Law*. 3rd ed. Law Book Co., 1972.
Isaac, J. E. & Ford, G. W. eds. *Australian Labour Relations: Readings*. 2nd ed. Sun Books, 1971.
Macken, J. J. *Australian Industrial Law*. Law Book Co., 1974.
O'Dea, R. *Industrial Relations in Australia*. 2nd ed. West, 1970.

TEXTBOOKS

Hendriksen, E. S. *Accounting Theory*. Rev. ed. Irwin, 1970.
Johnston, T. R., Jager, M. O. & Taylor, R. B. *Company Accounting*. 3rd ed. Butterworth, 1973.
Keller, T. F. & Zeff, S. A. eds. *Financial Accounting Theory II: Issues and Controversies*. McGraw-Hill, 1969.
Zeff, S. A. & Keller, T. F. eds. *Financial Accounting Theory I: Issues and Controversies*. 2nd ed. McGraw-Hill, 1973.
The Companies Act 1961 (as amended). Government Printer, Sydney.

ACCY 312 Accounting and Financial Management IIIB

Second session subject, 12 credit points

Management Accounting: An advanced treatment of management accounting theory and applications including statistical cost analysis, cost accounting, control systems, budgetary and strategic planning and decision models.

TEXTBOOKS

Dopuch, N., Birnberg, J. G. & Demski, J. *Cost Accounting*. 2nd Int. ed. Harcourt Brace Jovanovich Inc., 1974.
Horngren, C. T. *Cost Accounting: A Managerial Emphasis*. 3rd ed. Prentice-Hall, 1972.
Miller, D. W. & Starr, M. K. *Structure of Human Decisions*. Prentice-Hall, 1967.
Rappaport, A. ed. *Information for Decision Making*. 2nd ed. Prentice-Hall, 1975.

ACCY 322 Advanced Business Finance

First session subject, 6 credit points

Advanced aspects of corporate financial management, growth strategies, combinations and reorganisations; theories and models of capital structure and cost of capital.

TEXTBOOKS

No prescribed textbooks.

ACCY 332 Advanced Information Systems

Second session subject, 6 credit points

Advanced aspects of communication and information theory, system evaluation, design, implementation and management, accounting and associated computer applications, and software development.

TEXTBOOKS

Bates, F. & Douglas, M. L. *Programming Language/One*. 2nd ed. Prentice-Hall, 1970.
Prince, T. R. *Information Systems for Management Planning and Control*. Irwin, 1974.
Sanders, D. H. *Computers and Management*. McGraw-Hill, 1970. Paperback.
Sanders, D. H. *Computers in Business: An Introduction*. 2nd ed. McGraw-Hill, 1972.

ACCY 303 Selected Issues in Financial Accounting

First session subject, 6 credit points

Selected issues in external reporting, including issues in international accounting and comparative accounting standards.

TEXTBOOKS

As for Accounting & Financial Management IIIA.
plus
Bedford, N. M. *Income Determination Theory: An Accounting Framework.* Addison-Wesley, 1965.
Berg, K. B., Mueller, G. G. & Walker, L. M. eds. *Readings in International Accounting.* Houghton Mifflin Co., Boston, 1969.

ACCY 313 Selected Issues in Management Accounting

Second session subject, 6 credit points

Selected issues in management accounting, including international management accounting.

TEXTBOOKS

As for Accounting & Financial Management IIIB.
plus
Anthony, R. N., Dearden, J. & Vancil, R. F. *Management Control Systems.* Irwin, 1965.

ACCY 352 Advanced Taxation Law

First session subject, 6 credit points

Advanced aspects of taxation law, and an examination of other taxes including sales tax, stamp duty, payroll tax, death duty and estate duty.

TEXTBOOKS

Adams, P. R. *Australian Tax Planning.* Butterworth, 1973.
Income Tax Assessment Act 1936-74. Australian Government Printer, Canberra.
Income Tax (International Agreements) Act 1953-69.
Irving, H. R. *The Value on which Sales Tax is Payable.* Taxation Institute of Australia, 1965.
Mannix, E. F. & Harris, D. W. *Income Tax Guide.* Butterworth, 1975.
Ryan, K. W. *Manual of the Law of Income Tax in Australia.* Law Book Company, 1973.

COMPULSORY SUBJECTS FOR HONOURS DEGREE

400-level

ACCY 403 Accounting Theory

First session subject, 8 credit points

The nature of research, theory formation and validation. The nature of accounting. A study of the methods used in accounting theory formation, and of attempts to formulate theories of accounting.

TEXTBOOKS*

No prescribed textbooks.

ACCY 404 Current Developments in Accounting Thought—Financial

First session subject, 8 credit points

Review of objectives and functions of external reporting with particular reference to problems of periodic income measurement, value and valuation and communication. Evaluation of accounting measurement and valuation methods, including historical cost, general price level accounting, current value and relative price change accounting models. Contemporary developments in accounting thought arising from alterations in social attitudes, the law and professional pronouncements.

TEXTBOOKS*

No prescribed textbooks.

ACCY 413 Current Developments in Accounting Thought—Managerial

First session subject, 8 credit points

The conceptual basis of managerial accounting and information systems. Management systems and the management process. Business objectives: multiple and conflicting goals. Qualification of objectives. Information theory and communication within organizations. Developments in decision models, project and period planning, budgetary models and control systems, and measurement of performance, including motivation and behavioural considerations.

TEXTBOOKS*

No prescribed textbooks.

ACCY 493 Research Essay

Second session subject, 8 credit points

OPTIONAL SUBJECTS FOR HONOURS DEGREE

ACCY 414 Management Planning and Control

Second session subject, 8 credit points

Planning and control problems of decentralized organizations. Budgeting for and control of expense centres, plants and profit centres. Evaluation of managerial performance. Non-profit measures of performance. Inter-divisional arrangements. Internal profit measurement and transfer pricing. Administration of the capital budget. Organization, staffing and appraisal of the accounting and information services.

TEXTBOOKS*

No prescribed textbooks.

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* Reading is required from a wide variety of references, including books and journal articles. Specific recommendations may be obtained from the Accountancy Department.

ACCY 453 Studies in Taxation

Second session subject, 8 credit points

The statutory and common law foundations of the Federal income tax system. Common Law concepts of income and capital and statutory modifications and interpretations of these concepts. Legal and accounting approaches to taxable income. Tax and estate planning concepts. Tax avoidance and evasion. Tax incidence and equity. An examination of tax policies, provisions and problems relating to special entities—companies, partnerships, trusts, superannuation schemes—and special provision areas, such as primary producers, mining and petroleum industries, non-residence, foreign-controlled companies and royalty provisions. International aspects of Australian income tax including double tax agreements.

TEXTBOOKS*

No prescribed textbooks.

ACCY 405 International Accounting

Second session subject, 8 credit points

Differences in accounting thought and standards between countries. Influence of national outlook and policies and of economic infra-structure on accounting practice. Accounting developments in State-controlled economies and in developing countries. Comparative study of accounting in developed nations. Uniform systems of accounting. Corporate growth and its impact on accounting and auditing. Comparative study of auditing and reporting standards, and international aspects of public accounting practice. The multi-national corporation. The effect of changing price levels on accounting for international operations.

TEXTBOOKS*

No prescribed textbooks.

ACCY 473 History and Development of Accounting Thought

Second session subject, 8 credit points

An examination of the environmental factors and processes by which accounting thought, practices and institutions originated and developed in the ancient, mediaeval and modern eras. Ancient accounts. Special-purpose account-keeping in the Middle Ages. Philosophy, influence and constraints of the double-entry system. Development of basic concepts of continuity, accrual accounting and limited liability. Impact of the Industrial Revolution and changing corporate environments on accounting development. Legislative and institutional influences on accounting. Origin and development of educational and professional accountancy bodies and their influence on the development of accounting thought. Historical development of modern cost accounting.

TEXTBOOKS*

No prescribed textbooks.

* Reading is required from a wide variety of references, including books and journal articles. Specific recommendations may be obtained from the Accountancy Department.

ACCY 406 Issues in Financial Accounting and Reporting

Second session subject, 8 credit points

Contemporary issues in the field of financial accountability to external parties, particularly in respect of corporate organisations. Legal, institutional and professional reporting requirements. Financial accounting aspects of short term assets including inventories and long-lived assets and liabilities including intangibles, leases, pensions, long service leave and tax allocation. Proposals for improvement in external reporting.

TEXTBOOKS*

No prescribed textbooks.

ACCY 423 Investment Analysis and Management

Second session subject, 8 credit points

The theory of optimal investment decisions. Cost of capital. Introduction to portfolio theory and capital markets. Portfolio analysis. Sources of investment information. Investment media and strategies. Analysis of corporate performance and securities.

TEXTBOOKS*

No prescribed textbooks.

* Reading is required from a wide variety of references, including books and journal articles. Specific recommendations may be obtained from the Accountancy Department.

BIOLOGY

100-level

BIOL 101 General and Human Biology

Double session subject, 12 credit points

(84 hrs lectures, 28 hrs tutorials and 56 hrs practical)

This is an introductory course for students intending to proceed in the biological sciences.

Syllabus: Characteristics of living organisms. Properties of living matter. Cell structure and function: Life cycles. An introduction to biochemistry, ultrastructure, genetics and cytology. Plant structure and function. Physiology of vertebrate animals. Human biology and variation. The biology of microorganisms. Evolution. Anatomy and histology of selected animals. Practical work to illustrate the lecture course.

TEXTBOOKS

Abercrombie, M., Hickman, C. J. & Johnson, M. L. *A Dictionary of Biology*. Penguin.

Keeton, W. T. *Biological Science*. 2nd ed. Norton, N.Y.

Requirements for Practical Work: Students will be notified of equipment required for practical work. This must be purchased before the first practical class.

200-level

CHEM 204 Physical Chemistry IIB (for Biologists)

First session subject, 6 credit points

(28 hrs lectures and 56 hrs practical/tutorial)

A special course given by the Department of Chemistry for Biology students and a prerequisite for progression in Biology.

Energy and 1st Law of thermodynamics
Mathematical properties of state functions
Heat and work for various processes
Enthalpy, applications of 1st Law to ideal gases
Molecular basis for heat capacity. Equipartition rule
2nd Law, outline of general principle, mathematical apparatus
Entropy; calculations; molecular basis; 3rd Law
Free energy; temperature and pressure dependence; standard free energy; criteria for equilibrium; temperature dependence of equilibrium.
Phase equilibria; entropy of vaporisation.
Real gas equilibria; fugacity and activity.
Non-electrolyte solutions; chemical potential; activity coefficients and standard states. Gibbs Duhem equn.
Electrolyte solutions; conductivity; ionic mobility, transference no. Ionic activity and ionic strength;
Debye theory (not derived); activity determination.
Electrode processes: cells and cell reactions; standard

electrode potentials; concentration and temperature dependence of emf, concentration cells.

Kinetics—rate equations, reaction order, relation between rate equations and reaction mechanism.

Temperature dependence of reaction rate. Arrhenius theory

Collision theory. Transition state theory, entropy of activation.

TEXTBOOK

Adamson, A. W. *A Textbook of Physical Chemistry*. Academic Press, 1973.

ELEC 294 Introductory Systems Theory

Second session subject, 6 credit points

(28 hrs lectures, 14 hrs tutorials, 42 hrs practical)

A special course given by the Department of Electrical Engineering for Biology students and a prerequisite for progression in Biology.

Concept and examples of systems, dynamic properties; modelling; introduction to methods of analysis of linear systems with extension to non-linear problems. Analogue simulation and system model analysis by digital and analogue computer. Deterministic and stochastic responses and models; continuous and discrete signals.

Definition and measures of information; introduction to some of the properties of the measures and to the idea of channel capacity and coding. The relationship between thermodynamics and information. Information and organisation.

No texts are prescribed. The Department of Electrical Engineering should be consulted for reference books.

BIOLOGICAL ENERGETICS *(200- and 300-level)*

The full course in Biology will eventually be offered in three inter-related strands. Biological Energetics is the first of these strands and *it is anticipated* that it may be given in 4 units which, subject to completing the relevant prerequisites, can be taken at 200- or 300-level.

NOTE: In addition to the texts given with individual units, the following have been set for the entire Energy strand:

Loewy & Siekevitz. *Cell Structure and Function*. 2nd ed. Holt, Rinehart & Winston, 1969.
McGilvery. *Biochemistry*. Saunders, Philadelphia, 1970.

The Department of Biology should be consulted for supplementary references for all units.

200- and 300-level

BIOL 601 Bioenergetics I (Energy Metabolism)

First session subject, 6 credit points

(28 hrs lectures, 56 hrs practical/tutorial)

Cellular methods of energy conservation (oxidation-reduction potentials, electrochemical gradients, "high energy" compounds). Phosphorylation

mechanisms (photophosphorylation, oxidative phosphorylation, substrate-level phosphorylation). Aerobic energy metabolism in autotrophic and heterotrophic organisms. Anaerobic metabolism in autotrophic and heterotrophic organisms. The physiological significance of each phosphorylation mechanism. Energy requirements for biosynthesis and growth.

TEXTBOOK

Lehninger, A. L. *Bioenergetics*. 2nd ed. W. A. Benjamin, California, 1971*.

BIOL 602 Bioenergetics II (Cell Physiology)

Second session subject, 6 credit points

(28 hrs lectures, 56 hrs practical/tutorial)

Structure of microbial plant and animal cells. Maintenance of the intracellular environment. Diffusion across membranes, the role of chemical potential. Water potential and osmotic pressure. Distribution of ions across membranes, active transport of ions. Fluxes of metabolites. Intracellular maintenance and ordering; the function of organelles. Energy exchange within cells, the role of mitochondria and chloroplasts. Other energy-dependent processes. Entropy and information in cells.

TEXTBOOK

Nobel, P. S. *Introduction to Biophysical Plant Physiology*. W. H. Freeman, 1974.

BIOL 603 Bioenergetics III (Organismic Physiology)

First session subject, 6 credit points

(28 hrs lectures, 56 hrs practical/tutorial)

To be offered for the first time in 1976 and normally requiring both Bioenergetics I and II† as prerequisites.

Tentative syllabus:

Energy metabolism of multicellular organisms, effect of body size. Nutrition. Digestion and absorption of food. Respiration. Blood circulation and sap flow. Energetics of locomotion and the physiology of muscle. Poikilothermy and homeothermy. Water and solute metabolism. Adaptation to environmental stress.

TEXTBOOK

The provisional text is:

Gordon, M. S. *Animal Physiology: Principles and Adaptations*. 2nd ed. The Macmillan Co., 1972.

The Department of Biology should be consulted before first session 1976 about any change in the textbook list.

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* Paperback.

† These subjects formerly known as Energy I and II.

CHEMISTRY

100-level

CHEM 101 Chemistry IA (Introductory Physical and General Chemistry)

First session subject, 6 credit points

(28 hrs lectures, 14 hrs tutorials and 42 hrs practical)

Atomic theory and structure, chemical bonding, shapes of molecules. Particle theory of matter, gases and liquids, thermodynamics and thermochemistry.

CHEM 102 Chemistry IB (Introductory Organic and Physical Chemistry)

Second session subject, 6 credit points

(28 hrs lectures, 14 hrs tutorials and 42 hrs practical)

Chemical equilibrium and equilibrium constants. Acids and bases. Nomenclature, preparation and reactions of carbon compounds. Stereochemistry.

TEXTBOOKS

Brescia, F. et al. *Fundamentals of Chemistry*. Academic Press, 1970.
Pierce, C. & Smith, R. N. *General Chemistry Workbook*. 4th ed. Freeman, 1971.
Fessenden, R. J. & Fessenden, J. S. *The Basis of Organic Chemistry**. Allyn & Bacon, 1971.

REFERENCE BOOK

Barrow, G. M. et al. *Understanding Chemistry*. Benjamin, N.Y., 1969.

MAJOR COURSES IN CHEMISTRY

All subjects of the Chemistry course are single session subjects which consist of 28 hours lectures, 14 hours tutorials and 42 hours practical. There are four 200-level units and eight 300-level units.

Students taking a single major in Chemistry may not take more than two of the following 300-level units except by permission of the Departmental Chairman:

Inorganic Chemistry III
Spectroscopy III
Analytical Chemistry IIIA
Analytical Chemistry IIIB

As course sequences are currently under review students are advised to contact the Department for further information about the units required for single and double majors.

No reference books are listed for the Chemistry subjects. Students will be provided with a list of recommended reading at the commencement of each course.

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* Not required for Chemistry IA.

200-level

CHEM 201 Inorganic Chemistry II

Second session subject, 6 credit points

Systematic chemistry of some transition elements and non-metals. Introduction to coordination chemistry. Theories of Blomstrand-Jorgensen and Werner. The coordinate bond, stereoisomerism. Elementary magnetochemistry. Molecular orbital theory of bonding.

TEXTBOOKS

Basolo, F. & Johnson, R. C. *Co-ordination Chemistry*. Benjamin, 1964.
Cotton, F. A. & Wilkinson, G. *Advanced Inorganic Chemistry*. 3rd ed. Wiley, 1972.

CHEM 202 Organic Chemistry II

First session subject, 6 credit points

Survey of the more important organic reactions classified from the viewpoint of reaction mechanism. Nucleophilic substitution. Nucleophilic addition. Nucleophilic substitution of carbonyl and related compounds. Electrophilic substitution. Oxidation and reduction. Molecular rearrangements. Organic synthesis.

TEXTBOOKS

Hendrickson, J. B., Cram, D. J. & Hammond, G. S. *Organic Chemistry*. 3rd ed. McGraw-Hill, 1970.
Mann, F. G. & Saunders, B. C. *Practical Organic Chemistry*. 4th ed. Longmans, Green & Co., 1960.

CHEM 203 Physical Chemistry IIA

Second session subject, 6 credit points

Introductory Quantum Chemistry: Applications of quantum theory to the extra-nuclear structure of atoms. Applications to other chemical and physical systems. Molecular energies from both quantum mechancial and classical viewpoints.

Kinetic Theory: The study of rate processes. Collision theory and transition state theory. Applications to chemical systems.

TEXTBOOKS

Adamson, A. W. *A Textbook of Physical Chemistry*. Academic Press, 1973.
Dickson, T. R. *The Computer and Chemistry*. Freeman, 1968.

CHEM 204 Physical Chemistry IIB

First session subject, 6 credit points

Chemical thermodynamics (1st, 2nd and 3rd laws). Application of thermodynamics to chemical systems. Nature of electrolyte solutions and electrode processes.

TEXTBOOK

Adamson, A. W. *A Textbook of Physical Chemistry*. Academic Press, 1973.

CHEM 206 Chemistry for Metallurgists

Double session subject, 12 credit points

Comprises *Physical Chemistry IIA* (see above) and *Chemistry IIM* (described below):

Analytical Procedures: Sampling, solutions, separation methods, analysis techniques, statistical treatment of data.

Methods of Analysis: Gravimetric, volumetric—acid-base, redox, complexometry—spectroscopy, electrochemistry, extraction techniques.

TEXTBOOK

Fritz, J. S. & Schenk, G. *Quantitative Analytical Chemistry*. 2nd ed. Allyn & Bacon, 1969.

300-level

CHEM 301 Analytical Chemistry IIIA

First session subject, 6 credit points

Introduction to analytical procedures, ionic equilibrium studies as applied to analytical chemistry, methods of analysis.

TEXTBOOKS

Freiser, H. & Fernando, Q. *Ionic Equilibria in Analytical Chemistry*. 2nd ed. Wiley, 1966.

Fritz, J. S. & Schenk, G. *Quantitative Analytical Chemistry*. 2nd ed. Allyn & Bacon, 1969.

CHEM 302 Analytical Chemistry IIIB

Second session subject, 6 credit points

Electro analytical chemistry, analytical spectroscopy, radiochemistry, trace analysis.

TEXTBOOKS

Wilson, N. H. *An Approach to Chemical Analysis*. Pergamon, 1966.

Kolthoff, T. M., Sandell, E. B., Meehan, E. J. & Bruchenstein. *Quantitative Chemical Analysis*. McMillan, 1969.

CHEM 303 Inorganic Chemistry III

First session subject, 6 credit points

Coordination chemistry: The coordinate bond; stereochemistry; types of coordination compounds. *Ligand Field Theory:* Absorption spectra; Orgel diagrams; Jahn Teller effect. *Magnetochemistry:* The magnetic properties of the free ion; effect of crystal fields on magnetic properties; molecular anti-ferromagnetism.

TEXTBOOKS

Cotton, F. A. & Wilkinson, G. *Advanced Inorganic Chemistry*. 3rd ed. Interscience, 1972.
Earnshaw, A. *Introduction to Magnetochemistry*. Academic Press, 1968.
Sutton, D. *Electronic Spectra of Transition Metal Complexes*. McGraw-Hill, 1968.

CHEM 304 Organic Chemistry IIIA

Second session subject, 6 credit points

Stereochemistry. Heterocyclic chemistry. Non-benzenoid aromatic and condensed ring systems.

TEXTBOOKS

Badger, G. M. *Aromatic Character and Aromaticity*. C.U.P., 1969.
Eliel, E. L. *Stereochemistry of Carbon Compounds*. McGraw-Hill, 1962.
Paquette, L. A. *Principles of Modern Heterocyclic Chemistry*. Benjamin, 1968.

CHEM 305 Organic Chemistry IIIB

First session subject, 6 credit points

Synthetic organic chemistry. Natural products and biosynthesis.

TEXTBOOKS

Hendrickson, J. B. *The Molecules of Nature*. Benjamin, 1964.
Law, H. O. *The Organic Chemistry of Peptides*. Wiley, 1970.
Swan, G. A. *An Introduction to the Alkaloids*. Blackwell, 1967.

REFERENCE BOOK

Fieser, L. F. & Fieser, M. *Advanced Organic Chemistry*. Int. Student 2nd ed. Reinhold, 1969.

CHEM 306 Physical Chemistry IIIA

Second session subject, 6 credit points

Reaction kinetics and reaction mechanisms. Correlation of molecular structure with chemical reactivity. Theoretical chemistry of simple molecules. Theoretical chemistry applied to organic molecules. Quantum mechanical theory of electronic structure and bonding.

TEXTBOOKS

Riggs, N. V. *Quantum Chemistry*. Macmillan, 1970.
Wiberg, K. *Physical Organic Chemistry*. Wiley, 1964.
or
Hammett, L. P. *Physical Organic Chemistry*. 2nd ed. McGraw-Hill, 1970.

CHEM 307 Physical Chemistry IIIB

First session subject, 6 credit points

Thermodynamics of non-ideal systems. Surface chemistry and colloids. Chromatography.

TEXTBOOKS

Shaw, D. J. *Introduction to Colloid and Surface Chemistry*. Butterworth, 1966.
Stock, R. & Rice, C. B. F. *Chromatographic Methods*. 2nd ed. Chapman & Hall, 1967.

CHEM 308 Spectroscopy III

Second session subject, 6 credit points

Topics chosen from: Symmetry energy levels and selection rules for spectroscopic transitions. I.R. and U.V. spectroscopy. Nuclear magnetic resonance and electron spin resonance. Mass spectrometry. Atomic absorption spectroscopy. X-ray crystallography. Emission spectroscopy.

TEXTBOOKS

Cotton, F. A. *Chemical Applications of Group Theory*. 2nd ed. Wiley, 1971.
Coxon, J. M. & Hatton, B. *Organic Photochemistry*. Cambridge Univ. Press, 1974.
Dykes, S. F., Floyd, A. J., Sainsbury, M. & Theobald, R. S. *Organic Spectroscopy: An Introduction*. Penguin Books, 1971.

400-level

CHEM 401 Honours Lectures, Part I

First session subject, 6 credit points

CHEM 402 Honours Lectures, Part II

Second session subject, 6 credit points

CHEM 401 Project

Double session subject, 36 credit points

CIVIL ENGINEERING

The course offered by the Department of Civil Engineering is designed to give a general academic training for the Professional Civil Engineer. The course normally extends from a minimum of 8 sessions to a maximum of 16 sessions extending over a period of from 4 to 8 years.

In the earlier sessions of the course students are given further training in the basic sciences—Mathematics, Chemistry, Physics—together with an introduction to Civil Engineering, which includes practice areas of surveying, construction and design. In the 3rd and 4th sessions the course is increasingly devoted to Civil Engineering subjects and the design of Engineering structures commenced, while the remainder of the course is professionally orientated and includes Construction, Management, Town Planning and Public Health Engineering. Each student, whether completing the course in minimum time (8 sessions) or longer, is required to prepare a thesis on an area of specialization chosen by the student. A feature of the course is the optional areas of study available and students can include various areas of specialization depending upon their interests and abilities. Industrial experience is a necessary part of the course. All students must complete twelve weeks of industrial experience during the vacation at the end of their third year unless exempted by the Department due to the student's full time professional employment.

At present all students will be considered for the award of Honours granted for meritorious performance over the whole course.

For those students completing the course before June 1980 the degree of either the 1975 Bachelor of Engineering or Bachelor of Science (Engineering) is recognized by the Institution of Engineers, Australia, as giving full exemption from examinations for the grade of members.

The subjects Town Planning, Roads Engineering and Public Health Engineering, are recognized by the Local Government Examination Committee as giving exemption from those 3 areas when applying for a certificate as Engineer under the Local Government Act 1919.

A student's performance in a course will be based on a grade point system. Final grades in each subject will be listed as A, B, C, D or E where A = highest, B = above average, C = average, D = lowest passing grade, E = failure.

An A pass will count as 4 points for each credit hour of content (e.g. an A in a 3 credit hour subject will count as 12 grade points), a B will count as 3 points, C as 2 points, D as 1 point and E as 0 points. Students receiving a grade of E must repeat the subject for credit.

A scholarship index or grade point average is obtained by dividing the total number of grade points obtained by the number of credit hours taken. A minimum of 2.0 corresponding to a "C" average is required for graduation. Students with less than 2.0 in the early sessions of their course will be on probation and may be excluded from the course.

The Bachelor of Engineering — Civil Engineering to be offered at Wollongong has now been established. All of those students who have not completed the six 100-level subjects in the 1975 course, together with students enrolling for the first time in 1976 will enrol in this course.

Those students who have completed the prescribed 100-level subjects may continue with their existing courses or, where possible*, may transfer to the Wollongong course.

* Students are advised to consult Chairman, Department of Civil Engineering.

It should be noted that from 1975 there is but one Wollongong course, whether taken over 8 or 16 sessions and students continuing with their existing courses should note that such courses will be progressively replaced.

The Wollongong course may be taken at various rates to suit the individual student. In general, most students will attend the course over 8 sessions but students should note that those students on full time professional employment may complete their course within 12 sessions.

BACHELOR OF ENGINEERING DEGREE IN MINING ENGINEERING

The course in Mining Engineering offered at Wollongong leads to the Degree of Bachelor of Engineering in Mining Engineering. The course, is presently being negotiated and any enquiries concerning the details of the subjects offered should be made to the Chairman of the Department of Civil Engineering.

The course has developed from the part-time course leading to the BSc(Eng) offered at Wollongong University College. The new course will lead to the degree of Bachelor of Engineering and will normally be of 5 years' duration (10 sessions). Emphasis will be placed on industrial experience. This is necessary both for academic needs and to meet the requirements for the State Mines Department and the Mine Manager's Certificate of Competency.

During the first 2 years of the course the student will be in full employment and arrange to attend the University approximately 12 hours per week for formal work. The 3rd year of attendance requires the student to be full time. In the 4th year of attendance the student is full time for the first session and half of the following session (8). Following the examinations on session 8 the student commences an intensive period of professional practice by working full time in the mining industry. The following year requires the student to be in full time attendance to complete his course.

The course is designed to give students a sound foundation of basic mining engineering knowledge with some degree of specialization in the field either of coal mining or metalliferous mining.

The subjects offered in 1976 in the Mining Engineering course will be given on application. Depending on staff and facilities the arrangement of this course may be varied within this general framework.

A student's performance in a course will be based on a grade point system. Final grades in each subject will be listed as A, B, C, D or E where A = highest, B = above average, C = average, D = lowest passing grade, E = failure.

An A pass will count as 4 points for each credit hour of content (e.g. an A in a 3 credit hour subject will count as 12 grade points), a B will count as 3 points, C as 2 points, D as 1 point and E as 0 points. Students receiving a grade of E must repeat the subject for credit.

A scholarship index or grade point average is obtained by dividing the total number of grade points obtained by the number of credit hours taken. A minimum of 2.0 corresponding to a "C" average is required for graduation. Students with less than 2.0 in the early sessions of their course will be on probation and may be excluded from the course.

NOTE: RE-ENROLLING STUDENTS SEEKING INFORMATION ABOUT THE DETAILS OF CIVIL ENGINEERING SUBJECTS APPEARING IN SCHEDULE A BUT NOT DESCRIBED IN THIS SECTION ARE ADVISED TO CONTACT THE DEPARTMENT OF CIVIL ENGINEERING.

100-level

CIVL 111 Introduction to Design C

Second session subject, 3 credit points

(a) *Drawing Practice* with examples taken from trusses, space frames, urban systems, transportation.

(b) *Design* of bolted and welded attachments. Introduction to structural design, design loads, factor of safety, codes of practice.

(c) *Materials in design* including classification of civil engineering materials, occurrence, processing, manufacture and their properties.

(d) *Workshop Practice* including elementary workshop exercises and practice in the use of simple machine tools and welding.

RECOMMENDED READING

AS CZ1. Aust. Standard Engineering Drawing Practice. I.E. Aust. 72.

CIVL 122 Mechanics and Structures

First session subject, 3 credit points

Forces and equilibrium; axial forces in trusses; shear forces and bending moments in beams; stresses and strains at a point; bending and shear stresses; introduction to the deflection of beams.

RECOMMENDED READING

Atkins, Dorwell, McMahon. 1, 2, 3. *Mechanics & Structures.* Science Press.

CIVL 123 Dynamics for Civil Engineers

Second session subject, 3 credit points

Graphical and analytical analysis of velocity and acceleration. Relative motion. Energy conservation. Kinematics. Particle dynamics. Introduction to vibrations, noise. Isolation.

RECOMMENDED READING

Crede, C. E. *Vibrations and Shock Isolation.*
Hansen, H. M. & Chenea, P. F. *Mechanics of Vibration.*
Parkin, P. H. and Humphreys, H. R. *Acoustics, Noise and Building.*

CIVL 142 Materials 1C

Second session subject, 6 credit points

Introduction to the study of the mechanical properties of metals and non-metals; introduction to non-metallic engineering materials including wood, concrete, ceramics. Energy concepts.

RECOMMENDED READING

Davis, H. E., Troxell, G. E. & Wiskocil, C. T. *The Testing and Inspection of Engineering Materials*. McGraw-Hill.
Di Benedetto, A. T. *The Structure and Properties of Materials*. McGraw-Hill.
Hayden, H. W., Moffatt, W. G. & Wulff, J. *The Structure and Properties of Materials*. Wiley.
Jastizebski. *Nature and Properties of Engineering Materials*. (W.I.E.).
Polakonski, W. H. and Ribling, E. J. *Strength and Structures of Engineering Materials*. Prentice-Hall.
Richards, C. W. *Engineering Materials Science*. Chapman and Hall.

CIVL 171 Engineering Surveying 1

First session subject, 3 credit points

Linear measurements, corrections, chain surveying, simple levelling. Earthworks. Theodolite and compass traversing; simple curves, transition curves, vertical curves, setting out.

RECOMMENDED READING

Bannister, A. & Raymond, S. *Surveying*. Pitman. *Seven Figure Mathematical Tables*. Chambers.
Bouchard, H. & Moffitt, F. H. *Surveying*. 5th ed. International.
Clark, D. *Plane and Geodetic Surveying*. Vol. 1. 6th ed. Constable.

CIVL 172 Engineering Survey Camp

Pre-req. –

Co-req. CIVL 171

2 credit points

An area of land will be surveyed. Experience will be gained in carrying out linear measurements, chain surveys; level circuits; traverse surveys and computations; tacheometrical surveys; setting out of horizontal curves; plane tabling.

RECOMMENDED READING

Bannister, A. & Raymond, S. *Surveying*. Pitman. *Seven Figure Mathematical Tables*. Chambers.
Bouchard, H. & Moffitt, F. H. *Surveying*. 5th ed. International.
Clark, D. *Plane and Geodetic Surveying*. Vol. 1. 6th ed. Constable.

CIVL 191 Building Construction

First session subject, 3 credit points

Single and ridged roofs; solid and framed walls; footings; stone, brick, tiles, sheets, timber; roof coverings; ventilation ducting; heating and cooling appliances; basements; procedures; quality and management control; Economics.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 192 Civil Engineering Construction 1

Second session subject, 3 credit points

The classification, selection and use of plant, its organization and costs; site establishment, drilling, blasting, quarrying, tunnelling, pipe lines, pile driving, hoisting and conveying. Project planning, construction and analysing networks. Estimating. Preservation of structures.

RECOMMENDED READING

Antill, J. M. & Ryan, P. W. S. *Civil Engineering Construction*. Angus & Robertson.
Antill, J. M. & Woodhead, R. W. *Critical Path Methods in Construction Practice*. Wiley.
Antill, J. M. *Civil Engineering Management*. Angus & Robertson.
Thomas, L. J. *An Introduction to Mining*.

CIVL 193 Excursions 1

1 credit point

Visits to selected works and establishments.

CHEM 101 Chemistry IA

Refer to "Description of Subjects—Chemistry".

MATH 101 Mathematics IA

Refer to "Description of Subjects—Mathematics".

PHYS 142 Fundamentals of Physics B

Refer to the list of Physics subjects in Schedule A and to "Description of Subjects—Physics".

200-level

CIVL 213 Structural Design 1

Second session subject, 5 credit points

Pre-req. CIVL 111

Co-req. CIVL 251

(a) Steel structures, bolted and welded connections; simple and built up beams; trusses and columns.

(b) Introduction to design with timber and bricks.

RECOMMENDED READING

A.I.S. Steel Design Course. Part I and II.
Lay, M. G. *Source Book for the Australian Steel Structures Code*.
S.A.A. AS.1250. Steel Structures Code.
Gorenc, B. E. & Tinyou, R. *Steel Designers Handbook*. 2nd ed. N.S.W.U.P.
S.A.A. CA.65. Timber Engineering Handbook.

CIVL 225 Engineering Mechanics 1

First session subject, 4 credit points

Pre-req. CIVL 123

Co-req. –

Lagrangian equations of motion; vibrations and analogies; introduction to continuum mechanics.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 226 Engineering Mechanics 2

Second session subject, 4 credit points

Pre-req. –

Co-req. CIVL 281

Introduction to systems analysis; modelling and simulation; introduction to decision theory; optimization techniques; dynamic programming.

RECOMMENDED READING

Keller. *Mathematics of Modern Engineering.* Vol. II. I.C.E.S. Manuals.
Whitehouse, G. E. *System analysis and Design using Network Techniques.*
Zikhovitiskiy & Aodeyeva. *Linear and Convex Programming.*

CIVL 231 Hydraulics 1

Second session subject, 4 credit points

Pre-req. MATH 101

Co-req. –

Properties of fluids. Hydrostatics, stability of floating bodies. Continuity equation. Impulse—momentum principle, application to channels. Equations of motion; Euler and Bernoulli equations. Hydrodynamics, streamlines, flowfields, flow patterns for overflow structures. Flow measurement. Flow over weirs and spillways. Dimensional analysis.

RECOMMENDED READING

Olson, R. M. *Engineering Fluid Mechanics.* International.
Streeter, V. L. *Fluid Mechanics.*

CIVL 243 Materials 2C

Second session subject, 4 credit points

Pre-req. –

Co-req. CIVL 251

Failure and fracture theories; fatigue; impact strength—approximate methods; stress concentration; notch sensitivity; welding processes and residual stresses.

RECOMMENDED READING

Axelrad, D. R. *Strength of Materials for Engineers.* Pitman.
Davis, H. E., Troxell, G. E. and Wiskocil, G. T. *Testing and Inspection of Engineering Materials.* McGraw-Hill.

Forrest, P. G. *Fatigue of Metals*. Pergamon.
Heywood, R. B. *Designing against Fatigue*.
Lipson, C. & Juvinall, R. C. *Handbook of Stress and Strength*. Macmillan.
Mann, J. Y. *Fatigue of Materials*. M.U.P.
Marin, J. *Mechanical Behaviour of Engineering Materials*. Prentice-Hall.
Peterson, R. *Stress Concentration Design Factors*. Wiley.
Polakowski, N. H. & Ripling, E. J. *Strength and Structure of Engineering Materials*. Prentice-Hall.
Richards, C. W. *Engineering Materials Science*. Chapman & Hall.

CIVL 251 Strength of Materials 1

First session subject, 4 credit points

Pre-req. CIVL 122

Co-req. CIVL 281

Deflection of beams; flexibility and stiffness concepts; statically indeterminate beams, torsion of circular and thin wall sections. Combined loading; strain energy; buckling of compression members; elastic and non-elastic behaviour.

RECOMMENDED READING

Cernica, J. N. *Strength of Materials*.
Shanley, F. R. *Mechanics of Materials*.
Timoshenko & Gere. *Strength of Materials*. Van Nostrand Reinhald.

CIVL 252 Strength of Materials 2

Second session subject, 4 credit points

Pre-req. –

Co-req. CIVL 295

Experimental methods including dynamic loadings; strain gauge techniques; photo-elasticity; testing machines and procedures; methods of non-elastic analysis; applications.

RECOMMENDED READING

Chareton. *Model Analysis of Structures*.
Heywood, R. B. *Designing by Photo Elasticity*.
Holma. *Experimental Methods for Engineers*.
Zienkiewicz, O. C. & Hollister, G. S. *Stress Analysis*.

CIVL 273 Engineering Surveying 2

First session subject, 4 credit points

Pre-req. –

Co-req. CIVL 171

Optical distance measurement; electronic distance measurement; precise levelling; precise levelling equipment; triangulation surveys; theory of errors; Geodetic surveying; Geodetic computations.

RECOMMENDED READING

Clark, D. *Plane and Geodetic Surveying*. Vol. II.
Schofield. *Engineering Surveying*. Vol. II.

CIVL 281 Computational Techniques in Civil Engineering 1

First session subject, 5 credit points

Pre-req. MATH 101

Co-req. –

Taylor Series and its applications; Fourier methods of analysis; complex variable and contour integration; matrix analysis and its use in Civil Engineering. Computer usage.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 282 Computational Techniques in Civil Engineering 2

Second session subject, 5 credit points

Pre- or Co-req. CIVL 281

Introduction to statistical methods, quality control; finite differences; concepts of finite elements in relation to two and three dimensions. Computer applications using finite elements.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 294 Civil Engineering Construction 2

First session subject, 4 credit points

Pre-req. –

Co-req. CIVL 192

(a) Contracts, specifications, Bill of quantities, economic evaluation, Management, Personnel management;

(b) Introduction to transportation engineering; roads and pavements; airport engineering; railroad engineering; river and coastal engineering; pipeline transportation; belt conveyors; undersea transportation; transportation planning.

RECOMMENDED READING

Hennes & Eske. *Fundamentals of Transportation Engineering.* McGraw.

CIVL 295 Experimental Engineering 1C

First session subject, 4 credit points

Pre-req. CIVL 122, CIVL 111

Co-req. –

Design of models; instrumentation for the measurement of load, strain, displacement and deflection; data acquisition and analysis; applications to the manufacture and testing of specimens of civil engineering materials.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 296 Excursions 2

1 credit point

Pre-req. –
Co-req. Attending predominantly 200-level subjects

Visits to selected works and establishments.

ELEC 291 Applied Electricity 1

Double session subject, 8 credit points

Refer to "Description of Subjects—Electrical Engineering"—Servicing subjects.

300-level

CIVL 312 Civil Engineering Design

First session subject, 4 credit points

Pre-req. –
Co-req. CIVL 252, CIVL 326

(a) Topics to be selected from:—location and design of earth and rock filled dams, pipelines. Treatment works.

(b) Design of reinforced concrete elements.

RECOMMENDED READING

C. & C.A. Australian Reinforced Concrete Design Handbook.
Justin, Creger & Hinds. *Design of Dams.* 3 Vols.
S.A.A. A.S.1480 Concrete Structures Code.

CIVL 314 Structural Design 2

Second session subject, 4 credit points

Pre-req. CIVL 312
Co-req. –

(a) *Steel Structures*—design of continuous structures; rigid mill building frames; plastic design.

(b) *Concrete Structures*—Design of retaining walls, pre-stressed beams and slabs.

(c) *Use of Computers*

RECOMMENDED READING

C. & C.A. *Australian Reinforced Concrete Design Handbook.*
Gorenc, B. E. & Tinyou, R. *Steel Designer's Handbook.* 2nd ed. N.S.W.U.P.
S.A.A. A.S. 1250. Steel Structures Code.
S.A.A. A.S. 1480. Concrete Structures Code.
S.A.A. A.S 1481. Prestressed Concrete Code.

CIVL 326 Engineering Mechanics 3

First session subject, 4 credit points

Pre-req. CIVL 251

Co-req. –

Theory of re-inforced concrete; elements of pre-stressing; anchor blocks; limit methods; introduction to creep; initial and residual stresses; thermal strain; computer applications.

RECOMMENDED READING

C. & C.A. *Australian Reinforced Concrete Design Handbook.*

Conan, H. & Smith, P. R. *The Design of Reinforced Concrete.* A. & R.

Dunham, C. W. *The Theory and Practice of Reinforced Concrete.* McGraw-Hill.

Ferguson, P. M. *Reinforced Concrete Fundamentals.* Wiley.

Hughes, B. P. *Limit State Theory for Reinforced Concrete.* Pitman. *Relevant Australian Codes.*

Lin, T. Y. *Design of Prestressed Concrete Structures.* Wiley.

CIVL 327 Engineering Mechanics 4

Second session subject, 4 credit points

Pre-req. CIVL 226, CIVL 282

Co-req. –

Numerical and statistical methods including—

(a) Finite element methods; variational formulation for field problems with special cases.

(b) Probability theory, discrete and continuous data, probability density functions, statistical parameters, correlation and regression analysis, sampling theory, statistical inference, data generation using mathematical models, analysis of variance, goodness of fit tests.

RECOMMENDED READING

Guttman, I. & Wilks, S. *Introductory Engineering Statistics.*

Hoel, P. G. *Introduction to Mathematical Statistics.*

Salvadori & Baron. *Numerical Methods in Engineering.*

Zienkiewicz. *The Finite Element Method in Engineering Science.*

CIVL 332 Hydraulics 2

First session subject, 4 credit points

Pre-req. CIVL 231

Co-req. –

Similitude and modelling. Flow about immersed objects. Surface resistance in flow past plane boundaries and in ducts and channels. Flow of real fluids in pipes. Pipe networks. Unsteady pipe flow, waterhammer, surge tanks. Steady flow in uniform channels. Turbo-machinery, performance characteristics.

RECOMMENDED READING

Olson, R. M. *Engineering Fluid Mechanics.* International.

Strooter, V. L. *Fluid Mechanics.*

CIVL 334 Hydraulics 3

Second session subject, 4 credit points

Pre-req. CIVL 332

Co-req. –

The earth's water supply and its utilisation. Water resources and climate, precipitation processes, time and space variations of rainfall, rainfall losses, groundwater, hydrograph analysis, hydrograph synthesis, design flood estimation and recurrence interval, flood routing in rivers and reservoirs, urban drainage design, open channel hydraulics.

RECOMMENDED READING

Chow, V. T. *Handbook of Applied Hydrology*. McGraw-Hill.
Henderson, F. M. *Open Channel Flow*.
Linsley, R. K. et al. *Hydrology for Engineers*. McGraw-Hill.
Linsley, R. K. et al. *Applied Hydrology*. McGraw-Hill.

CIVL 344 Materials 3C

Second session subject, 4 credit points

Pre-req. CIVL 243

Co-req. –

Non destructive testing; properties of concrete—plastic and hardened; structure and composition; cement; mix design; additives; concrete manufacture, field control and acceptance. Introduction to highway materials.

RECOMMENDED READING

A.S.T.M. Standards, Part 10. Concrete and Mineral Aggregates. Amer. Soc. for Testing Materials, Philadelphia.
H.M.S.O. *Bituminous Materials in Road Construction*
Holliday (ed.). *Composite Materials*. Elsevier.
Orchard, D. F. *Concrete Technology*. Vols. I & II. CRL.
Stewart. *High Quality Concrete*. Spon.
Taylor, W. H. *Concrete Technology and Practice*. 3rd ed. A. & R.
Troxell, G. E., Davis, H. E. & Kelly, J. W. *Composition and Properties of Concrete*. McGraw-Hill.
U.S. Bureau of Reclamation. *Concrete Manual*.

CIVL 353 Structures 1C

First session subject, 4 credit points

Pre-req. CIVL 251

Co-req. –

Analysis of indeterminate structures, including space trusses, cables and arches; influence lines; energy methods. Slope deflection equations; moment distribution; flexibility and stiffness methods.

RECOMMENDED READING

Carpenter, S. T. *Structural Mechanics*. Wiley.
Cassie, W. F. *Structural Analysis*. Longman.
Gerstle, K. H. *Basic Structural Analysis*. Prentice-Hall.
Huang, C. K. *Structural Analysis*.
Laursen, H. I. *Structural Analysis*. McGraw-Hill.
Michalos, J. & Wilson, E. N. *Structural Mechanics and Analysis*. Macmillan.

Timoshenko, S. P. & Young, D. H. *Theory of Structures*. 2nd ed. McGraw-Hill.
White, R. N., Gergely, P. & Sexsmith, R. G. *Structural Engineering. Vol. 1, 2, Indeterminate Structures*. Wiley.

CIVL 354 Structures 2C

Second session subject, 4 credit points

Pre-req. CIVL 353

Co-req. –

Advanced beam theory: composite and curved beams; beam-columns; beams on elastic foundations. Limit analysis. Experimental structural analysis: direct and indirect techniques. Introduction to computer packages for structural analysis.

RECOMMENDED READING

Charlton, T. M. *Model Analysis of Plane Structures*. Pergamon.
Den Hartog, J. P. *Advanced Strength of Materials*. McGraw-Hill.
Ford, H. *Advanced Mechanics of Materials*. Longman.
Norris, C. H. & Wilbur, J. B. *Elementary Structural Analysis*. McGraw-Hill.
Seely, F. B. & Smith, J. O. *Advanced Mechanics of Materials*. Wiley.
Timoshenko, S. P. *Strength of Materials*. Vol. II. 3rd ed. Van Nostrand.

CIVL 362 Soil Mechanics 1

First session subject, 4 credit points

Pre-req. CIVL 251

Co-req. –

Principal types of soil; mechanical analysis and index properties of soils; permeability; settlement computation; stress strain behaviour of sands and clay; shearing resistance and conditions of failure for soils; desiccation of soil; flow nets and computation of quantity of seepage; mechanics of piping; introduction to theory of one dimensional consolidation; stability of slopes.

RECOMMENDED READING

Harr, M. E. *Foundations of Theoretical Soil Mechanics*. McGraw-Hill.
Lambe, T. W. & Whitman, R. V. *Soil Mechanics*. Wiley.
Lambe, T. W. *Soil Testing for Engineers*. Wiley.
Taylor, D. W. *Fundamental of Soil Mechanics*. Wiley.
Terzaghi, K. & Peck, R. B. *Soil Mechanics in Engineering Practice*. Wiley.

CIVL 363 Soil Mechanics 2

Second session subject, 4 credit points

Pre-req. CIVL 362

Co-req. –

Experimental determination of soil index properties; measurement of soil strength; theories of earth pressure; bearing capacity of shallow footings, piers and piles; earth pressure against bracing in cuts; stresses beneath loaded areas. Design of footings, rafts and pile foundations. Sheet piles and analysis for stability. Soil stabilisation. Soil exploration.

RECOMMENDED READING

Bishop, A. W. & Henkel, D. J. *Measurement of Soil Properties in the Triaxial Test*. Arnold.
HMSO. *Soil Mechanics for Road Engineers*.
Lambe, T. W. *Soil Testing for Engineers*. Wiley.
Scott, R. F. *Principles of Soil Mechanics*. Addison-Wesley.
Terzaghi, K. *Theoretical Soil Mechanics*. Wiley.
Terzaghi, K. & Peck, R. B. *Soil Mechanics in Engineering Practice*. Wiley.
Tschebotarioff, G. P. *Soil Mechanics, Foundations and Earth Structures*. McGraw-Hill.
Wu, T. H. *Soil Mechanics*. Allyn & Bacon.

CIVL 374 Engineering Surveying 3

Second session subject, 4 credit points

Pre-req. CIVL 273

Co-req. –

Photogrammetry: Radial line plotting; stereoscopy; applications to Cadastre; land utilization; route location; town planning and estate development.

RECOMMENDED READING

Kilford, W. K. *Elementary Air Survey*. Pitman Paperbacks.
Manual of Photogrammetry. 3rd ed. Am. Soc. Photography.
Moffit, F. H. *Photogrammetry*. 2nd ed. International.

CIVL 781 Coastal Engineering

First session subject, 4 credit points

Pre-req. –

Co-req. Attending predominantly 200-level subjects

Theory of deep and shallow water waves. Wind generated waves. Storm surge. Seich and harbour resonance. Wave refraction and breaking. Wave forces on structures. Shoreline processes, erosion and deposition. Tides in oceans and propagation into estuaries. Models for coastal and estuary investigations.

RECOMMENDED READING

Henderson, F. M. *Open Channel Flow*.
Ippen, A. T. *Estuary and Coastline Hydrodynamics*.
USCE-CERC. *Shore Protection Planning and Design*.
Wiegel, R. L. *Coastal Engineering*.

CIVL 782 Geology for Civil Engineers

First session subject, 4 credit points

Pre-req. –

Co-req. Attending predominantly 300-level subjects

Minerals and rocks. Igneous, sedimentary and metamorphic rocks. Geologic structure-faulting, folding and jointing. Principles of geological chronology, methods of correlation, the geologic time scale. Geologic maps and sections. The relationship of geology to Civil Engineering. Engineering properties of rocks. Natural slopes and mass movements.

Dams and reservoirs. Tunnels, highways and airfields. Concrete aggregates. Practical and field work.

RECOMMENDED READING

Krynine, D. P. & Judd, W. R. *Principles of Engineering Geology and Geotechnics*. McGraw-Hill.
Schultz, J. R. & Cleaves, A. B. *Geology in Engineering*. Wiley.

CIVL 783 Roads Engineering

Second session subject, 5 credit points

Pre-req. –

Co-req. Attending predominantly 300-level subjects

Road location and surveys, road design standards, types and functions of pavements, construction methods, earthworks and earth moving machinery. Construction planning and scheduling. Road drainage requirements. Economic analysis and costing. Transport systems and communication networks.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 397 Civil Engineering Construction 3

First session subject, 4 credit points

Pre-req. CIVL 294

Co-req. –

To encompass coffer dams; underpinning and dewatering systems; design of formwork, modular building.

RECOMMENDED READING

Jacoby & Davis. *Foundations for Bridges and Buildings.*
Tomlinson. *Foundation Design & Construction.*

CIVL 398 Excursions 3

1 credit point

Pre-req. –

Co-req. Attending predominantly 300-level subjects

Visits to selected works and establishments.

CIVL 399 Industrial Experience

1 credit point

At least 12 weeks of suitable industrial experience must be gained in the summer vacation following the third year, unless employed full time in a civil engineering organisation.

MECH 241 Thermodynamics I

Refer to "Description of Subjects—Mechanical Engineering".

MECH 391 Heat Transfer for Civil Engineers

Not to be offered in 1976.

CIVL 784 Introductory Modern Languages

First session subject, 4 credit points
Depending upon the availability, the subject offered will be selected from: French, Italian, Chinese, Bahasa Indonesian, Japanese, Russian.

400-level

CIVL 401 Civil Engineering Thesis

Double session subject, 20 credit points

Pre-req. Have completed at least 90% of 300-level subjects
Co-req. –

Each student is required to prepare a thesis on a subject or topic approved by the Chairman of the Department.

The subject of a thesis may cover:—

(a) a report of original work performed by the student in the laboratory or field.

(b) a theoretical and experimental investigation of a Civil Engineering problem.

(c) a set of drawings and calculations covering a Civil Engineering design.

CIVIL ENGINEERING PRACTICE

For students in full employment each year of appropriate supervised employment that is approved by the Chairman of the Department may, on request, be credited as 4 credit points. A maximum of six such units are allowed described as:—

		Credit Points
CIVL 410	Civil Engineering Practice 1	4
CIVL 411	Civil Engineering Practice 2	4
CIVL 412	Civil Engineering Practice 3	4
CIVL 413	Civil Engineering Practice 4	4
CIVL 415	Civil Engineering Practice 5	4
CIVL 416	Civil Engineering Practice 6	4

A Corporate member of the Institution of Engineers representing the organization where the Professional Practice was obtained, must examine and sign for such practice work for it to be applied against the course. A report is to be submitted for each subject, the assessment and evaluation of which will be made by the Departmental Assessment Committee.

CIVL 417 Structural Design 3

First session subject, 4 credit points

Pre-req. CIVL 314

Co-req. –

Problem definition, value and criteria selection; generation of proposals; analyses of proposals; selection of design; development of details of a particular design selected.

Feasibility studies and examination of existing works.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 434 Hydraulic Engineering

Second session subject, 4 credit points

Pre-req. CIVL 333

Co-req. –

Reservoir design and operation. Spillway design. Hydro-electric schemes. Urban and rural water supply schemes. Sediment transport and river erosion, river control. Flood mitigation schemes.

RECOMMENDED READING

Chow, V. T. *Handbook of Applied Hydrology.*
Henderson, F. M. *Open Channel Flow.*
Linsley, R. K. & Franzini, J. B. *Water Resources Engineering.*
Rouse, H. *Engineering Hydraulics.*
USBR. *Design of Small Dams.*

CIVL 445 Civil Engineering Materials 1

First session subject, 4 credit points

Pre-req. CIVL 344

Co-req. –

Properties and applications of timber; physical and mechanical properties of polymers; concrete technology including creep, shrinkage, bond durability, physical and chemical deterioration, permeability, special concretes. Highway material.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 446 Civil Engineering Materials 2

Second session subject, 4 credit points

Pre-req. CIVL 445

Co-req. –

Structural applications of plastics, reinforced plastics and plastic laminates; composites; mechanical and physical properties of fibre reinforced materials; principles of adhesives; corrosion of metallic and non-metallic materials.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 455 Structures 3

Second session subject, 4 credit points

Pre-req. CIVL 354

Co-req. –

Introduction to two-dimensional theory of elasticity. Torsion of non-circular sections; membrane analogy. Small deflection theory of thin plates; numerical methods of solution. General theory of cylindrical and conical shells. Introduction to theory of elastic stability.

RECOMMENDED READING

Gibson. *Design of Cylindrical Steel Roofs.*

Timoshenko, S. P. & Goodier, J. N. *Theory of Elasticity.* 2nd ed. McGraw-Hill.

Timoshenko, S. P. & Woinowsky-Krieger, S. *Theory of Plates and Shells.* 2nd ed. McGraw-Hill.

Timoshenko, S. P. & Gere, J. M. *Theory of Elastic Stability.* 3rd ed. McGraw-Hill.

CIVL 456 Structures 4

Second session subject, 4 credit points

Pre-req. CIVL 354

Co-req. –

Variational principles. Finite element and finite strip methods. Structural dynamics. Computer applications.

RECOMMENDED READING

Gere, J. M. & Weaver, W. *Analysis of Framed Structures.* Van Nostrand.

Laursen, H. I. *Matrix Analysis of Structures.* McGraw-Hill.

Meek, J. L. *Matrix Structural Analysis.* McGraw-Hill.

Przemieniecki, J. S. *Theory of Matrix Structural Analysis.* McGraw-Hill.

Rubinstein, M. F. *Matrix Computer Analysis of Structures.* Prentice-Hall.

Willems, N. & Lucas, W. M. *Matrix Analysis for Structural Engineers.* Prentice-Hall.

Zienkiewicz, O. C. *The Finite Element Method in Engineering Science.* McGraw-Hill.

CIVL 463 Foundation Engineering

First session subject, 4 credit points

Pre-req. CIVL 363

Co-req. –

Natural soil deposits, discussion of techniques for subsurface investigation, selection of foundation type on different soils, design of individual footings subjected to movement, combined footings and rafts, retaining walls and abutments, anchored bulkheads, braced cuts.

Damage due to construction operations, shoring and underpinning, movements associated with excavations. Techniques for drainage and stabilisation.

RECOMMENDED READING

Karol, R. H. *Soil Mechanics.*

Peck, R. B., Hanson, W. E. & Thornburn, T. H. *Foundation Engineering.*

Terzaghi, K. & Peck, R. B. *Soil Mechanics in Engineering Practice.*

Tschebotarioff, G. P. *Foundations, Retaining and Earth Structures.*

CIVL 464 Soil Mechanics 3

Second session subject, 4 credit points

Pre-req. CIVL 363

Co-req. –

Conformal mapping in seepage problems, unconfined seepage; analysis of earth dams for rapid draw-down. Applications of anisotropic elasticity; two and three-dimensional consolidation; special triaxial tests; residual shear strength concepts; stress paths; recent theories (stress dilatancy and camclay); numerical techniques applied to soil mechanics; introduction to soil dynamics.

RECOMMENDED READING

Bishop, A. W. & Henkel, D. J. *Measurement of Soil Properties in the Triaxial Test.*

Lambe, T. W. & Whitman, R. V. *Soil Mechanics.*

Terzaghi, K. *Theoretical Soil Mechanics.*

CIVL 475 Engineering Surveying 4

Second session subject, 4 credit points

Pre-req. CIVL 374

Co-req. –

Field astronomy; underground surveying; hydrographical surveying.

RECOMMENDED READING

Clark, D. *Plane and Geodetic Surveying Vol. II.*

CIVL 481 Engineering Management 1

First session subject, 3 credit points

Pre-req. Have completed at least 90% of 300-level subjects

Co-req. –

Theory and practice of organization and industry; general principles of law of contract.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 482 Engineering Management 2

Second session subject, 3 credit points

Pre-req. Have completed at least 90% of 300-level subjects

Co-req. –

Industrial relations. Introduction to cost accounting.

RECOMMENDED READING

A reading list will be available 1 week before lectures commence.

CIVL 491 Computer Applications in Civil Engineering 1

First session subject, 4 credit points

Pre-req. CIVL 282, CIVL 383

Co-req. CIVL 488

The writing and use of problem oriented computer programmes, based on I.C.E.S. such as COGO, ROADS, PROJECT, BRIDGE, SEPOL, LEASE, TRAVOL, TOPOLOGY.

RECOMMENDED READING

R67-61 ICES SEPOL 1. *User's Manual.* MIT Press.
R67-69 ICES BRIDGE 1 DESIGN SYSTEM. *General Description and Engineering User's Manual.* MIT.
R67-71 ICES BRIDGE 1 DESIGN SYSTEM. *Problem Formulation and Solutions.* MIT.
R68-6. *Example Problems for ICES COGO 1.* MIT.
R68-9 ICES ROADS 1. *Engineer's Reference Manual.* MIT.
R68-10 ICES TRANSET 1. *Engineering User's Manual.* MIT.
R68-11 ICES PROJECT 1. *Engineering User's Manual.* MIT.
R68-62 ICES TRAVOL 1. *Engineering User's Manual.* MIT.
R69-22 ICES LEASE 1. *User's Manual.* MIT.

CIVL 492 Computer Applications in Civil Engineering 2

Second session subject, 4 credit points

Pre-req. CIVL 282

Co-req. CIVL 354

The writing and use of problem oriented computer languages such as STRUDL II.

RECOMMENDED READING

R67-58 ICES TABLE 1. *Engineering User's Manual.* MIT.
R68-56 ICES. *Subsystem Development Primer.* MIT.
R68-91 ICES STRUDL 11. *Engineering User's Manual.* Vols. 1, 2 & 3. MIT.
R69-23. *Computer-Aided Teaching of the Finite Element Displacement Method.* MIT.
R69-34 ICES TABLE 11. *Engineering User's Manual.* MIT.

CIVL 493 Public Health Engineering

Second session subject, 5 credit points

Pre-req. –

Co-req. Attending predominantly 400-level subjects

Water supply and treatment: Sources of supply, estimates of demand. Water quality standards, methods of water treatment. Atmospheric pollution: sources of pollution, methods of control. Design of sewerage systems, sewage treatment. Trade wastes, effects and treatment. Sanitation: unsewered areas, refuse collection and disposal. Specifications and estimates for public health engineering.

RECOMMENDED READING

Fair, G. M., Geyer, J. C. & Okun, D. A. *Water and waste water Engineering.*
Tebbutt, T. H. Y. *Principles of water quality control.*

CIVL 486 The Civil Engineer and The Environment

First session subject, 4 credit points

Pre-req. –

Co-req. Enrolled in predominantly 400-level subjects

Economic and social evaluation of engineering projects. The interdependence of the roles of the Civil Engineer and Architect, with their responsibilities to the community.

Problems of development and use of resources. Excess waste material. Air pollution, water pollution and noise. Case studies of Civil engineering works, e.g. freeway construction, irrigation vs. flood mitigation, development of unstable areas.

RECOMMENDED READING

The Institution of Civil Engineers. *Standard Method of Measurement of Civil Engineering Quantities*. London. I.C.E., 1953.

The Institution of Civil Engineers. *An Introduction to Engineering Economics*. London. 2nd ed. I.C.E., 1956.

The Institution of Civil Engineers. *The Organisation of Civil Engineering Work*. London. I.C.E., 1960.

The Institution of Civil Engineers. *The Contract System in Civil Engineering*. London. I.C.E., 1946.

The Institution of Engineers, Australia. *General Conditions of Contract for Engineering Works, Structures and Buildings*. Sydney, I.E.A.

CIVL 487 Town Planning

First session subject, 5 credit points

Pre-req. –

Co-req. Enrolled in predominantly 400-level subjects

Urbanisation past and present. The modern city in its regional context. Planning processes and techniques. Plans and planners; planning law and administration in New South Wales.

RECOMMENDED READING

Abercrombie. *Town and Country Planning*.

Boyd, R. *The Australian Ugliness*. Cheshire. Melbourne, 1960.

Brown & Sherrard. *An Introduction to Town and Country Planning*. Melbourne University Press, 1968.

Bunker, R. *Town and Country or City and Region*. Melbourne University Press, 1971.

CIVL 488 Traffic Engineering and Transportation

Second session subject, 4 credit points

Pre-req. –

Co-req. Enrolled in predominantly 400-level subjects

(a) TRAFFIC ENGINEERING

This course is basically involved with improving traffic flow without major re-constructions.

(b) TRANSPORTATION

Transportation Engineering—Roads engineering, airport engineering, railroad engineering, river and coastal engineering, pipeline transportation, belt conveyors, undersea transportation.

Transportation Planning—Introduction to transportation planning, transportation studies, land use.

RECOMMENDED READING

Hennes & Eske. *Fundamentals of Transportation Engineering*. McGraw-Hill.
Institute of Traffic Engineers. *Traffic Engineers Handbook*.

CIVL 490 Excursions 4

1 credit point

Pre-req. –

Co-req. Attending predominantly 400-level subjects

Visits to selected works and establishments.

ECONOMICS

100-level

ECON 101 Economics I

First session subject, 6 credit points

(Four class hrs per week)

The course consists of two parts:—

An introduction to macroeconomic analysis including the study of national income and the relationships between flows of payments and flows of goods and services which constitute income.

An introductory study of some important Australian economic institutions and changes in these institutions affecting the structure of markets for products, financial markets, and the labour market.

PRELIMINARY READING

Bowden, E. V. *Economics Through the Looking Glass*. Canfield, 1974.

TEXTBOOKS

Shapiro, E. *Macroeconomic Analysis*. 3rd ed. Harcourt Brace, World & Jovanovich, New York, 1974.
Boehm, E. A. *Twentieth Century Economic Development in Australia*. Longmans, Sydney, 1971.

REFERENCE BOOKS

Nevile & Stammer. *Inflation and Unemployment*. Penguin, Melbourne, 1971.
Arndt, H. W. *A Small Rich Industrial Country*. Cheshire, 1970.

ECON 111 Economics II

Second session subject, 6 credit points

(Four class hrs per week)

An introduction to microeconomics which includes the market system, demand and supply analysis, the equilibrium of the firm under different market structures, factor pricing and markets, and general equilibrium analysis. The organizational aspects of this analysis will be related to the Australian economy.

PRELIMINARY READING

Dorfman, R. *The Price System*. Prentice-Hall.

TEXTBOOK

Alchian, A. A. & Allen, W. R. *Exchange and Production: Theory in Use*. Wadsworth.
or Alchian, A. A. & Allen, W. R. *University Economics*. Wadsworth.
or Leftwich, R. H. *The Price System and Resource Allocation*. Holt, Rinehart and Winston, 5th ed.

REFERENCE BOOKS

Breit, W. & Hochman, H. *Readings in Microeconomics*. 2nd ed. Holt, Rinehart & Winston, New York, 1971.
Mansfield, E. *Microeconomics—Theory and Applications*. Norton, New York, 1970.

Mansfield, E. *Microeconomics—Selected Readings*. Norton, New York, 1971.
Mermelstein, D. *Economics—Mainstream Readings and Radical Critiques*. 2nd ed. Random House, New York, 1970.
Boehm, E. A. *Twentieth Century Economic Development in Australia*. Longmans, Sydney, 1971.
Bilas, R. A. *Microeconomic Theory: A Graphical Analysis*. McGraw-Hill.
Lancaster, K. *Introduction to Modern Microeconomics*. Rand McNally.
Lipsey, R. G. *An Introduction to Positive Economics*. Weidenfeld and Nicolson.

ECON 121 Quantitative Methods I

First session subject, 6 credit points

(Four class hrs per week)

Analysis of data, use of matrix algebra in economics, measures of central tendency; time series, trend, seasonal, and cyclical components, index numbers, construction and use; introduction to probability theory as it relates to sampling theory and practice.

REFERENCE BOOKS

Hamburg, M. *Basic Statistics*. Harcourt, Brace & Jovanovich, 1974.
James, P. E. & Throsby, C. P. *Introduction to Quantitative Methods*. J. Wiley, Adelaide, 1973.

ECON 122 Quantitative Methods II

Second session subject, 6 credit points

(Four class hrs per week)

Introduction to derivatives of functions as it relates to minimisation and maximisation; minimisation of errors in simple regression analysis; introduction to sampling distribution, hypothesis testing and errors as they relate to simple linear regression.

REFERENCE BOOKS

As for *Quantitative Methods I*.

200-level

ECON 203 Macroeconomics

First session subject, 6 credit points

(3 hrs per week)

This subject is the second core course in the Macroeconomics stream which begins in first year with Economics I and continues to Public Finance. The aim of the subject is development of monetary analysis. The latter stages of the course uses this analysis in conjunction with product market analysis to examine the role of money and how it may influence economic activity. The topics covered are introduction to financial institutions as they relate to money supply and money demand, money supply theory, theories of the demand for money and the tools and techniques of monetary policy.

TEXTBOOKS

Arndt, H. W. & Stammer, D. W. *The Australian Trading Banks*. Cheshire, 1972.
*Boorman, J. T. & Havrilesky, T. M. *Money Supply, Money Demand and Macroeconomic Models*. Allyn & Bacon, 1972.
Coombs, H. C. *Other People's Money*. ANU Press, 1971.
Laidler, D. E. *The Demand for Money—Theories and Evidence*. International, 1969.

* Subject to possible reconsideration when certain forthcoming publications are available.

REFERENCE BOOKS

In addition to those books listed above, the following are recommended:

Clower, R. W. ed. *Monetary Theory: Selected Readings*. Penguin Modern Economics.
Johnson, H. G. *Essays in Monetary Economics*. Allen & Unwin.
and one of the following set of readings:
Carson, D. ed. *Money and Finance*. Wiley.
Entine, A. D. ed. *Monetary Economics*. Wadsworth.
Lindauer, J. *Macroeconomic Readings*. Collier Macmillan Australia.
Mittra, S. ed. *Money and Banking*. Random House.
Prager, J. ed. *Monetary Economics*. Random House.
Smith, W. L. & Teigen, R. L. eds. *Readings in Money, National Income and Stabilisation Policy*. Irwin.
Wolf, H. A. & Doenges, R. C. eds. *Readings in Money and Banking*. Appleton-Century-Crofts.

ECON 204 Public Finance

Second session subject, 6 credit points
(3 hrs per week)

The subject is designed to provide an introduction to Public Finance, with special reference to Australia. An analysis of the theoretical issues involved in equity, efficiency and incidence of taxes is used as a basis for an analysis of different types of tax bases. Income tax, company tax, sales taxes, land taxes, turnover taxes, consumption taxes, value added tax and capital gains taxes are all examined. Non tax sources of revenue are also examined as is the Public Debt. Particular attention will be paid throughout to the Australian situation and in particular the effects of the Federal system on Australian Public Finance will be considered.

Public expenditure will also be studied, with particular emphasis on the welfare effects of government expenditure. Questions about the type of goods and services which the government might provide and the size of the government sector will also be examined. The effects of social welfare expenditure and other expenditures on the distribution of income will also be studied.

TEXTBOOKS

Newman, H. E. *An Introduction to Public Finance*. Wiley, 1967.
Mathews & Jay. *Federal Finance*. Nelson, 1972.

REFERENCE BOOKS

Groves & Bosh. *Financing Government*. Holt, Rinehart & Winston, 1973.
Houghton, R. ed. *Public Finance*. Penguin, 1970.
Hyman, D. *The Economics of Government Activity*. Holt, Rinehart & Winston, 1973.
Mathews, R. ed. *Fiscal Federalism: Retrospect and Prospect*. ANU Press.
Fiscal Equalisation in a Federal System. ANU Press, 1974.
Richardson, I. *Patterns of Australian Federalism*. ANU Press, 1974.

ECON 213 Microeconomics

First session subject, 6 credit points

(3 hrs per week)

This subject emphasises the microeconomic aspects of the industrial sector. After a brief introduction to welfare economics, the concept of the centre firm/periphery firm is developed. With this dichotomy as a basis the following topics are discussed—characteristics of the industrial system, administered prices, goals of firms, competitive strategies, market performance of large firms, the investment decision and the process of growth, uncertainty and planning, information and research and development activity, and the problem of power associated with the activities of the large firm.

TEXTBOOK

Pickering, J. F. *Industrial Structure & Market Conduct*. Martin Robertson, London, 1974.

REFERENCE BOOKS

Averitt, R. *The Dual Economy*. Norton, New York, 1968.
Caves, R. *American Industry, Structure, Conduct, Performance*. Prentice-Hall, N.J., 1972.
Galbraith, J. K. *The New Industrial State*. Penguin, 1970.
Gilbert, M. ed. *The Modern Business Enterprise*. Penguin, 1972.
George, K. D. *Industrial Organisation*. Allen & Unwin, 1971.
Mansfield, E. *Monopoly Power and Economic Performance*. Rev. ed., Norton, New York, 1968.
Mason, E. *The Corporation and Modern Society*. Atheneum, New York, 1970.
Rothschild, K. *Power in Economics*. Penguin, 1971.
Weiss, L. *Case Studies in American Industry*. Wiley, New York, 1971.
Vamey, B. S. *Economics of Industrial Structure*. Penguin, 1973.

ECON 214 International Economics

Second session subject, 6 credit points

(3 hrs per week)

This subject extends the study of the international economy in the following areas: the structure and pattern of international trade and income levels; the analysis of resource allocation; protection; factor transfers; the foreign exchange market; the balance of payments and its implications in macroeconomic analysis; the international monetary system.

Australian international economic relations will have special attention.

REFERENCE BOOKS

Grubel, H. G. *The International Monetary System*. Penguin, 1970.
Snape, R. H. *International Trade and the Australian Economy*. 2nd ed. Longmans, 1969.
Soderstein, B. *International Economics*. Harper & Row, 1970.

SUPPLEMENTARY REFERENCES

Balassa, B. A. *Changing Patterns in Foreign Trade and Payments*. Norton, 1964.
Caves, R. E. & Jones, R. W. *World Trade and Payments*. Little, Brown & Co., 1973.

Harrod, R. & Hague, D. eds. *International Trade Theory in a Developing World*. Macmillan, 1963.
Machlup, F. *International Monetary Economics*. Allen & Unwin, 1966.
Theberge, J. D. ed. *Economics of Trade and Development*. Wiley, 1968.

ECON 221 Quantitative Methods III

First session subject, 6 credit points

(3 class hrs per week)

Extension to probability theory, Bayes theorem as it relates to decision theory; managerial decision theory, types of decisions, Bayesian decision theory, games theory; inventory problems, replacement problems, queueing theory; discounting procedures, internal rate of return, net present value, Benefit/cost ratio.

REFERENCE BOOKS

Chisholm, A. H. & Dillon, J. L. *Discounting and Other Interest Rate Procedures in Farm Management*. Professional Farm Management Guide Book No. 2, University of New England Press, 1968.
Bierman, H. J. R., Bonini, C. P. & Hausman. *Quantitative Analysis for Business Decisions*. 4th ed. Irwin, Illinois, 1973.
or Park, C. M. *Quantitative Methods for Managerial Decisions*. McGraw-Hill, New York, 1973.

ECON 222 Quantitative Methods IV

Second session subject, 6 credit points

(3 class hrs per week)

Input-output analysis: theory, economic applications; linear programming: theory, economic applications, relation to various types of allocation problems.

REFERENCE BOOKS

Throsby, C. D. *Elementary Linear Programming*. Random House, 1970.
Yan, Chiou-Shuang. *Introduction to Input-Output Economics*. Holt, Rinehart & Winston, 1969.

SUPPLEMENTARY REFERENCES

Dorfman, R., Samuelson, P. A. & Solow, R. M. *Linear Programming and Economic Analysis*. McGraw-Hill, 1958.
Isard, W. et al. *Methods of Regional Analysis: An Introduction to Regional Science*. Wiley, 1960.
Peston, M. H. *Elementary Matrices for Economics*. Routledge & Kegan Paul, 1969.

300-level

ECON 302 Comparative Economic Systems

Second session subject, 8 credit points

(3 class hrs per week)

Classification of economic systems. A priori arguments about the relative efficiency and non-economic implications of centralised and decentralised economic systems. The structure, conduct and performance of the Soviet, Yugoslav, Japanese and French economies.

REFERENCE BOOKS

Dirlam, J. B. & Plummer, J. L. *An Introduction to the Yugoslav Economy*. Merrill, Columbus, Ohio, 1973.
Goldman, M. *Comparative Economic Systems—A Reader*. 2nd ed. Random House, N.Y., 1971.
Sherman, H. *The Soviet Economy*. Little, Brown & Co., Boston, 1969.

SUPPLEMENTARY REFERENCES

Felker, J. *Soviet Economic Controversies*. M.I.T. Press, Cambridge Mass., 1966.
Hackett, J. *Economic Planning in France*. Allen & Unwin, London, 1963.
Hayek, F. *Collectivist Economic Planning*. Routledge & Kegan Paul, London, 1956.
Kolaja, J. *Workers Councils: the Yugoslav Experience*. Tavistock, London, 1965.
Lange, O. *On the Economic Theory of Socialism*. McGraw-Hill, N.Y., 1964.
Maddison, A. *Economic Growth in Japan and the U.S.S.R.* Allen & Unwin, London, 1969.
Pejovich, S. *The Market—Planned Economy of Yugoslavia*. Minnesota U.P., 1966.
Pigou, A. *Socialism v. Capitalism*. Macmillan, London, 1964.
Sharpe, M. *The Liberman Discussion: A New Phase in Soviet Economic Thought*. International Arts & Science Press, White Plains, N.Y., 1966.
Sturmthal, A. *Workers Councils: A Study of Workplace Organization on Both Sides of the Iron Curtain*. Harvard U.P., Cambridge, Mass., 1964.

ECON 311 Natural Resource Economics

First session subject, 8 credit points

(3 class hrs per week)

A study of the role of natural resources in the economic process and of the problems associated with the use and development of natural resources. Reference will be made to current problems in resource use. Topics to be studied include: definition and classification of natural resources, their social significance; how natural resources become involved in the economic process, the theory of property rights, the role of property; the use of natural resources by individuals and by society; natural resources in relation to economic growth and development, classical doctrine of natural resource scarcity, impact of technological change.

TEXTBOOKS

Enthoven, A. C. & Myrick Freeman III, A. eds. *Pollution Resources and the Environment*. Norton.
Herfendahl, D. C. & Kneese, A. V. *Economic Theory of Natural Resources*. Merrill.

REFERENCE BOOKS

Barnett, H. & Morse, C. *Scarcity and Growth*. Johns Hopkins Press, 1963.
Dorfman, R. & Dorfman, N. S. eds. *Economics of the Environment. Selected Readings*. Norton, 1972.

SUPPLEMENTARY REFERENCES

Barkley, P. W. & Seckler, D. W. *Economic Growth and Environmental Decay*. Harcourt, Brace & Jovanovich, 1972.
Dales, J. H. *Pollution, Property and Prices*. Toronto U.P., 1968.
Jarrett, H. ed. *Environmental Quality in a Growing Economy*. Johns Hopkins, 1966.

Kneese, A. V. & Herfendahl, D. C. *Introduction to the Economic Theory of Natural Resource Use*. Merrill Publishing Co., 1973.
Mishan, E. J. *Cost Benefit Analysis*. Unwin, 1971.
Sinden, J. ed. *The Natural Resources of Australia*. Angus & Robertson, 1972.

ECON 312 Industrial Economics

First session subject, 8 credit points

(3 class hrs per week)

A study of factors affecting production and productivity, with particular regard for industrial organisation in Australia. The emphasis will be on the industry, the economic sector, and the regional and national organisation of industry, as they affect the decisions relating to prices, employment, investment, innovation, output and income distribution.

REFERENCE BOOKS

Cowling, K. ed. *Market Structure and Corporate Behaviour*. Gray Mills, 1973.
Doctoroff, M. *Company Mergers and Takeovers*. Cheshire, 1972.
Edel, M. *Economics and the Environment*. Prentice-Hall, 1973.
Hirst, R. R. & Wallace, R. H. eds. *Studies in the Australian Capital Market*. Cheshire, 1969.
Lamberton, D. M. ed. *Industrial Economics*. Pelican, 1972.
Mansfield, E. *Monopoly Power and Economic Performance*. Rev. ed. Norton, 1968.
Mansfield, E. *Economics of Technical Change*. Longmans.
Needham, D. *Economic Analysis and Industrial Structure*. Holt, Rinehart & Winston, 1970.
Needham, D. ed. *Readings in the Economics of Industrial Organisations*. Holt, Rinehart & Winston, 1970.
Nieuwenhuysen, J. P. ed. *Australian Trade Practices*. Cheshire, 1970.
Nove, A. & Nuti, D. M. eds. *Socialist Economics*. Penguin, 1972.
O'Dea, R. *Industrial Relations in Australia*. West, 1970.
Reid and Allen. *Nationalized Industries*. Penguin, 1970.
Riach, P. A. & Howard, D. O. A. *Productivity Agreements and Australian Wage Determination*. Wiley, 1973.
Rose, P. J. *Australian Security Markets*. Cheshire, 1968.
Scherer, F. M. *Industrial Pricing*. McNally, 1970.
Stewardson and Davidson. *Economics and Australian Industry*. Longman, 1974.
Stubbs, P. *Innovation and Research: A Study in Australian Industry*. Cheshire, 1968.
Tariff Board. *Annual Reports*.
Utton, M. A. *Industrial Concentration*. Penguin, 1970.
Ward, T. S. *The Distribution of Consumer Goods*. Cambridge U.P., 1973.
Watson, D. S. *Price Theory in Action*. 2nd ed. Houghton Mifflin, 1969.

ECON 303 Economic Development Issues

First session subject, 8 credit points

(3 class hrs per week)

The subject concentrates on the study of those factors which characterise underdevelopment. Particular emphasis is placed on the institutional aspects of underdevelopment and the way in which these influence the choice of development strategy. Particular emphasis is placed on

education and the role of labour in development, including manpower policies. Other major topics include distribution of income, agriculture and land reform; industrialization (with special emphasis on the traditional small-scale sector); trade; aid and foreign investment. Finally some of the newer theories of development which take account of institutional factors in underdeveloped countries are studied.

TEXTBOOKS

Meier, G. M. *Leading Issues in Economic Development*. O.U.P.

REFERENCE BOOKS

Galbraith, J. K. *Economic Development*. Harvard University Press, 1968.
Morgan, T. *Economic Development: Readings in Theory and Practice*. Wadsworth, 1970.
Myrdal, G. *Asian Drama*. Vols 1, 2, 3. Pelican, 1969.
Spiegelglas, S. & Welsh, C. J. *Economic Development: Challenge and Promise*. Prentice-Hall, 1973.
Maddison, A. *Economic Progress and Policy in Developing Countries*. Allen & Unwin, 1970.

ECON 304 Economic Policy

First session subject, 8 credit points

(3 class hrs per week)

This is a study of the objectives of macroeconomic policies, the relations between objectives, and the use of monetary, fiscal and other instruments of policy. Particular attention is given to policies concerned with prices, employment and incomes in Australia and the main instruments available for their implementation.

REFERENCE BOOKS

Nevile, J. W. *Fiscal Policy in Australia*. Cheshire, 1970.
Runcie, N. ed. *Australian Monetary and Fiscal Policy*. London U.P., 1971.
Shaw, G. K. *Macroeconomic Policy*. Martin Robertson & Co., 1971.
Stanford, J. D. *Money, Banking and Economic Activity*. Wiley, 1973.
Whitehead, D. H. *Stagflation and Wages Policy in Australia*. Longmans, 1973.

SUPPLEMENTARY REFERENCES

Abraham, W. I. *National Income and Economic Accounting*. Prentice-Hall, 1969.
Jackson, D., Turner, H. A. & Wilkinson, F. *Do Trade Unions Cause Inflation*. Cambridge U.P., 1972.
Niland and Isaac. *Australian Labour Economics*. SUN, 1975.
Perkins, J. O. N. & Sullivan, J. *Banks and the Capital Market: An Australian Study*. Melbourne U.P., 1970.
Rose, P. J. *Australian Securities Markets*. Cheshire, 1969.
Runcie, N. *The Economics of Instalment Credit*. London U.P., 1969.
Visser, H. *The Quantity of Money*. Martin Robertson, 1974.

ECON 305 Economic Development Planning

Second session subject, 8 credit points

(3 class hrs per week)

This subject emphasises techniques of development planning, and deals with the following topics:—

Models of development and development strategy; programming; project evaluation; budgeting; planning organisation; development plans of some less-developed countries.

TEXTBOOKS

Bhagwati, J. N. & Eckaus, R. S. eds. *Development and Planning*. Allen & Unwin, 1973.
Griffin, K. B. & Enos, J. L. *Planning Development*. Addison-Wesley, 1970.
Lewis, W. A. *Development Planning*. Allen & Unwin, 1966.

REFERENCE BOOKS

Adelman, I. & Thorbecke, E. eds. *The Theory and Design of Economic Development*. Johns Hopkins, 1966.
Adelman, I. ed. *Practical Approaches to Development Planning*. Johns Hopkins, 1969.
Chakravarty, S. *Capital and Development Planning*. M.I.T. Press, 1969.
Hirschman, A. *Development Projects Observed*. Brookings, 1967.
Little, I. D. M. & Mirrless, J. *Project Appraisal and Planning for Developing Countries*. Heinemann, 1974.
Papanek, G. F. ed. *Development Policy. Theory and Practice*. Harvard, 1968.
Stone, R. *Mathematics in the Social Sciences and Other Essays*. Chapman & Hall, 1966.
Tinbergen, J. & Bos, H. C. *Mathematical Models of Economic Growth*. McGraw-Hill, 1962.
Vanek, J. *Estimating Foreign Resource Needs for Economic Development*. McGraw-Hill, 1967.
Waterston, A. *Development Planning: Lessons of Experience*. Johns Hopkins, 1965.

ECON 313 Transport Economics

Second session subject, 8 credit points

This subject considers the significance of transport systems in structuring spatial patterns. It consists of two interdependent sections, one devoted to the development of a conceptual framework and substantive discussion of transport systems and the other concerned with statistical techniques and methodology.

Section A examines system concepts, analysis and structure for selected modal systems at various scales—for example, intra-urban transit systems, inter-urban road, rail systems and international air and maritime systems. Section B deals with techniques for network analysis, optimizing flows in networks and regression analysis.

REFERENCE BOOKS

Bird, J. *Seaports and Seaport Terminals*. Hutchinson, 1971.
Blunden, W. R. *The Landuse Transport System: Analysis and Synthesis*. Pergamon, 1971.
Couper, A. D. *The Geography of Sea Transport*. Hutchinson, 1972.
Eliot-Hurst, M. E. *Transportation Geography: Comments and Readings*. McGraw-Hill, 1974.
Haggett, P. & Chorley, R. J. *Network Analysis in Geography*. Arnold, 1969.
Hay, A. *Transport for the space economy: a geographical study*. Macmillan, 1973.
Hutchinson, B. *Principles of Urban Transportation Planning*. McGraw-Hill, 1974.
Meyer, J. R., Kain, J. F. & Wohl, M. *The Urban Transportation Problem*. Harvard, 1969.

Proceedings of the First International Conference on Transportation Research. Bruges, 1974.
Taaffe, E. J. & Gauthier, H. L. *Geography of Transportation*. Prentice-Hall, 1973.

ECON 314 Urban and Regional Economics

First session subject, 8 credit points

(3 class hrs per week)

The nature of the regional problem in Australia and overseas:

1. Inter-regional disparities in unemployment, income and growth. The effect of such disparities on achievement of national macroeconomic goals.
2. The trend toward metropolitan primacy. The costs of economic concentration. Some explanations of the spatial distribution of economic activity: economics of agglomeration, location theories (transport cost and central place theories), economic base theory, export base theory, poles of growth theory.

Some applications of macroeconomic theory at the regional level: regional accounts, regional input-output analysis, regional growth models, regional multipliers, inter-regional trade theory, regional equilibrium analysis.

Australian and European policies for control of spatial distribution of economic activity. Effectiveness of such policies.

REFERENCE BOOKS

McKee, D. L. et al. *Regional Economics*. Free Press, N.Y., 1970.
Stilwell, F. J. B. *Australian Urban and Regional Development*. Australia and New Zealand Book Co., Sydney, 1974.

SUPPLEMENTARY REFERENCES

Allen, K. & Maclennan, M. *Regional Policies and Problems in Italy and France*. Allen & Unwin, London, 1970.
Friedmann, J. & Alonso, W. *Regional Development and Planning*. M.I.T. Press, Cambridge, Mass., 1964.
McCrone, G. *Regional Policy in Britain*. Allen & Unwin, London, 1969.
Needleman, L. *Regional Analysis*. Penguin, 1968.
Nourse, H. *Regional Economics*. McGraw-Hill, N.Y., 1968.
Organization for Economic Co-operation and Development. *The Regional Factor in Economic Development*. Paris, 1970.
Orr, S. C. & Cullingworth, J. B. *Regional and Urban Studies*. Allen & Unwin, London, 1969.
Richardson, N. *Elements of Regional Economics*. Penguin, 1969.
Richardson, N. *Regional Economics*. Weidenfeld & Nicolson, London, 1969.

ECON 321 Econometrics

First session subject, 8 credit points

(3 class hrs per week)

The subject will be an introduction to the use of multiple regression in economic analysis. The major concern will be with the estimation of single equations. A theoretical framework for the second session subject Econometric Models is provided.

TEXTBOOKS

Rao, P. & Miller, R. L. *Applied Econometrics*. Wadsworth, 1971.
Wonnacott, R. J. & Wonnacott, T. H. *Econometrics*. Wiley, 1969.

REFERENCE BOOK

Johnston, J. *Econometric Methods*. McGraw-Hill, 1973.

ECON 323 Econometric Models

Second session subject, 8 credit points

(3 class hrs per week)

This subject will complete the series in Econometrics. It will be an applied course in evaluating and building of Econometric Models. Single equation, recursive and simultaneous models will be considered.

TEXTBOOKS

Johnston, J. *Econometric Methods*. 2nd ed. McGraw-Hill, 1973.
Wonnacott, R. J. & Wonnacott, T. *Econometrics*. Wiley, 1969.

REFERENCE BOOKS

Christ, C. F. *Econometric Models and Methods*. Wiley, 1966.
Dhrymes, P. J. *Econometrics*. North Holland, 1970.
Rao, P. & Miller, L. L. *Applied Econometrics*. Wadsworth Pub. Co., 1971.
Theil, H. *Economic Forecasts and Policy*. 2nd ed. North Holland Pub. Co., 1961.
Theil, H. *Principles of Econometrics*. North Holland, 1971.

ECON 322 Mathematical Economics

Second session subject, 8 credit points

(3 class hrs per week)

Material for this subject will be drawn from the following:

Mathematical treatment of Microeconomics and Macroeconomics. Market equilibrium, perfect competition, imperfect competition; welfare economics, pareto optimality; consumption, savings, investment function; Keynesian models. dynamic multiplier; simple models.

400-level

ECON 431 Advanced Economic Analysis

Double session subject, 30 credit points

(6 class hrs per week)

This subject, together with the completion of the thesis, occupies the final year of the full-time Honours degree course. It consists of six parts, each of which normally requires 21 class hours. The whole amounts to a survey of advanced economic theory; it normally includes advanced macro- and micro-economics, cyclical fluctuations, economic growth, monetary theory, international economics. welfare, and history of economic thought.

EDUCATION

200-level

Education II

This is an introductory course in educational studies in a social context. Normally, students enrolling in this course shall have passed not fewer than three full first-year subjects or the equivalent, though this condition may be modified in special circumstances by the Head of the Department.

The course includes four Sections totalling four hours of lectures a week with additional laboratory and tutorial experience averaging approximately an hour a week.

Education II consists of the following subjects:

EDUC 201 Educational Psychology
EDUC 202 Educational Sociology
EDUC 203 Philosophy in Education
EDUC 204 (a) Educational Research Methodology
(b) Atypical Children

Note: Education II subjects will not be offered in 1976. Students requiring further information are advised to contact the Department of Education.

300-level

EDUC 301 Education IIIA

Double session subject, 24 credit points

Pre-req. Education II

Three units selected from the following:

(a) Developmental Principles in Education

(3 hours a week)

This unit offers an opportunity to study the concept of human development, emphasizing cognition, and a selection of contemporary theories of development within the context of contemporary society and education. Course work will include a child study.

TEXTBOOKS

Bruner, J. S. *Beyond the Information Given*. Allen & Unwin, London, 1974.
Ginsburg, H. & Opper, S. *Piaget's Theory of Intellectual Development*. Prentice-Hall, Englewood Cliffs, 1969.

(b) Comparative Education

(3 hours a week)

A comparative treatment of schooling in the social context, the preparation of teachers and tertiary education in a selection of cultures in relation to the Australian educational scene.

TEXTBOOKS

Bereday, G. L. F. *Essays on World Education*. Oxford University Press, London, 1969.
Bronfenbrenner, U. *Two Worlds of Childhood*. Harmondsworth, Penguin, 1974.

(c) History of Education

(3 hours a week)

This unit comprises: An introduction to the histories of Western and Australian education, based on a study of individuals, institutions and cultures and the development of educational systems.

TEXTBOOKS

Austin, A. G. *Selected Documents in Australian Education*. Pitman, London, 1963.
Boyd, W. *History of Western Education*. Black, London, 1964.
Plato. *The Republic*. (any edition).

(d) Educational Research Methodology

(3 hours a week)

This unit offers a study of the nature of educational research, surveys and experiments, and the evaluation of research and report writing. Problems in designing conventional and action research programmes will be discussed.

TEXTBOOKS

Budd, W. C. & Kelly, S. P. *Educational Research by Practitioners*. Harper & Row, London, 1970.
Dayton, C. M. *The Design of Educational Experiments*. McGraw-Hill, New York, 1970.

(e) Philosophy in Education

(3 hours a week)

A study is offered of recent and contemporary educational ideas and philosophy in education, including educational outcomes of traditional and contemporary philosophical points of view, and a consideration of aims of education and means by which they might be realized.

TEXTBOOKS

Brown, L. M. *Aims of Education*. New York: Teachers College Press, Columbia University, 1970.
O'Connor, D. J. *An Introduction to the Philosophy of Education*. Routledge & Kegan Paul, London, 1957.

ELECTRICAL ENGINEERING

Assessment

All subjects offered by the Department of Electrical Engineering are normally assessed by means of a final examination. In addition, set project work, laboratory reports and tutorial problems undertaken by the student throughout the session may also be taken into account.

1. CORE MATERIAL

ELEC 101 Electrical Engineering 1

Double session subject, 6 credit points

(A total of 84 hrs of lectures and tutorials)

Introduction to electrical quantities and measurements, circuit analysis, energy conversion, electronic devices and circuits.

TEXTBOOK

Fitzgerald, A. E., Higginbotham, D. E. & Grabel, A. *Basic Electrical Engineering*. 4th ed. McGraw-Hill, 1975.

REFERENCE BOOKS

Edminister, J. A. *Electric Circuits*. Schaums Outline Series.
Millman, J. & Halkias, C. C. *Integrated Electronics Analog and Digital Circuits and Systems*. McGraw-Hill, 1972.
Smith, R. J. *Circuits, Devices and Systems*. 2nd ed. Wiley, 1970.

ELEC 551 Instrumentation and Measurements

Second session subject, 3 credit points

(42 hrs of lectures and laboratory work)

Data presentation and errors. Basic electrical measuring, recording and display instruments. Characteristics and measurement of circuit elements. Digital and analogue signals. Transducers.

TEXTBOOK

Wedlock, B. D. & Roberge, J. K. *Electronic Components and Measurements*. Prentice-Hall, 1969.

ELEC 201 Circuit Theory 1

First session subject, 4 credit points

ELEC 202 Circuit Theory 2

Second session subject, 4 credit points

ELEC 403 Circuit Theory 3

First session subject, 4 credit points

Development of circuit analysis from field descriptions; validity of KCL and KVL; topological properties of networks; mesh current, node voltage and cut-set analysis; classical solution of network equations; special case of sinusoidal steady state, phasor and impedance concepts. Generalised network analysis via Laplace transforms.

Network theorems, sinusoidal steady state, 3 phase systems. Further analysis in the S-domain; Fourier series and transform applications; two-port networks; state space and matrix methods.

Filter circuits, transmission lines, introduction to random signal theory.

TEXTBOOKS

Circuit Theory 1 and 2
Desoer, C. A. & Kuh, E. S. *Basic Circuit Theory*. McGraw-Hill, 1969.
Edminister, J. A. *Electric Circuits*. Schaum, 1972.
Circuit Theory 3
Chipman, R. A. *Transmission Lines*. Schaum, 1968.
Cooper, G. R. & McGillem, C. D. *Methods of Signal & System Analysis*. Holt, Rinehart & Winston, 1967.

ELEC 211 Electronics 1

First session subject, 4 credit points

ELEC 312 Electronics 2

First session subject, 4 credit points

ELEC 313 Electronics 3

Second session subject, 4 credit points

Semiconductor devices and device models; current transport in semiconductors, diodes, bipolar and field-effect transistors, circuit modelling, biasing, single-stage wideband amplifiers, frequency response, design procedures.

Analysis and design of multistage amplifiers, feedback amplifiers, and sinusoidal oscillators. Applications of integrated circuits as building blocks for linear and non-linear analog systems.

Analysis and design of digital, switching, and power circuits: IC logic gates, combinational digital circuits; discrete-component multivibrators and IC flip-flops, sequential circuits; basic methods for analog/digital conversions; stabilised power supplies, thyristor regulators.

TEXTBOOKS

Gray, P. E. & Searle, C. L. *Electronic Principles: Physics, Models, Circuits*. Wiley, 1969.
Millman, J. & Halkias, C. C. *Integrated Electronics, Analog and Digital Circuits and Systems*. McGraw-Hill, 1972.

ELEC 221 Energy Conversion and Distribution 1

Second session subject, 4 credit points

ELEC 322 Energy Conversion and Distribution 2

Second session subject, 4 credit points

ELEC 423 Energy Conversion and Distribution 3

First session subject, 4 credit points

Recapitulation of basic laws in electro and magneto statics and dynamics. Properties of ferromagnetic materials and magnetic circuits. Energy conversion principles, with emphasis on electro mechanical devices. Coupled circuits, polyphase and instrument transformers; dynamic circuit theory; transducers.

Steady state and transient performance of d.c. machines. Steady state performance of synchronous, induction and commutator machines.

Transmission line parameters and system modelling. Load flow analysis; frequency and voltage control; maximum power transfer, steady state stability. Symmetrical and unsymmetrical fault calculations.

Static converters; applications to a.c. and d.c. machine control.

TEXTBOOKS

Energy Conv. & Dist. 1

Gourishanker, V. & Kelly, P. H. *Electro-Mechanical Energy Conversion.* Intext Co., 1973.

Energy Conv. & Dist. 2

Fitzgerald, A. E., Kingsley, C. & Kusko, A. *Electric Machinery.* 3rd ed. McGraw-Hill, 1971.

Energy Conv. & Dist. 3

Elgerd, O. I. *Electric Energy Systems Theory.* McGraw-Hill, 1971.

ELEC 531 Computers 1

Second session subject, 3 credit points

ELEC 631 Computers 2

First session subject, 4 credit points

ELEC 731 Computers 3

First session subject, 4 credit points

(Each subject comprises a total of 126 hrs of lectures and tutorials)

History of computers, introduction to adders, integrators, coef. pots, analogue programming, engineering applications. Number systems, codes, description of digital computers and general organisation, computer peripherals, iterative techniques in engineering design. Use and applications of high-level and assembler languages.

Switching algebra, combination and sequential logic, use and application of assembler languages. Analogue computer components, setting up of linear systems, time and magnitude scaling.

Advanced switching algebra for combination and sequential circuits, error detection, cycles, races hazards. Advanced work on digital computer organisation and interfacing. Representation of higher-order linear, non-linear and time varying systems on analogue computers. Introduction to Hybrid computers. Simulation and modelling of engineering systems on computers.

TEXTBOOKS

Hill, F. J. & Peterson, G. R. *Introduction to Switching Theory and Logical Design*. Wiley, 1968.

Vowels, R. A. *Algol 60 and Fortran IV*. Wiley, 1974.

Scott, N. R. *Electronic Computer Technology*. McGraw-Hill, 1970.

ELEC 341 Control 1

First session subject, 4 credit points

ELEC 342 Control 2

Second session subject, 4 credit points

Description and physical systems by differential equations—Lagrange's equations; the convolution integral, transfer functions, block diagrams and signal flow graphs; feedback and its effects; analog computer simulation; stability by Routh-Hurwitz criteria; frequency response on polar and rectangular plots; stability by Nyquist criterion and its extension to Bode Plots; System types and performance with standard inputs.

Root locus methods, frequency response and transient response from root locus diagram; performance criteria and their application to design; synthesis of single-input single-output linear systems by root locus, and Bode diagram; minor loop design.

TEXTBOOKS

Dorf, R. C. *Modern Control Systems*. 2nd ed. Addison-Wesley, 1974.

Dransfield, P. & Haber, D. F. *Introducing Root Locus*. C.U.P., 1973.

ELEC 461 Communications 1

First session subject, 4 credit points

Basic structure of communication systems; analog modulation and detection, analysis and methods of signal processing, performance of AM and FM systems in presence of noise; binary PCM and $\triangle$M, quantization, error probability. Comparison of information—transmission systems.

TEXTBOOK

Taub, H. & Schilling, D. L. *Principles of Communication Systems*. McGraw-Hill, 1971.

ELEC 279 Materials 2

Second session subject, 4 credit points

(42 hrs of lectures and tutorials)

Electron energies in solids; magnetic, dielectric, thermal and optical properties of materials; adsorption and emission of radiation. Electrical discharges in gases.

REFERENCE BOOKS

Hutchison, T. S. & Baird, D. C. *Physics of Engineering Solids*. 2nd ed. Wiley, 1968.

Hall, H. E. *Solid State Physics*. Wiley, 1974.

Howatson, A. M. *Introduction to Gas Discharges*. Pergamon Press, 1965.

ELEC 251 Laboratory 2

Second session subject, 3 credit points

ELEC 352 Laboratory 3A

First session subject, 3 credit points

ELEC 353 Laboratory 3B

First session subject, 3 credit points

ELEC 354 Laboratory 3C

Second session subject, 3 credit points

ELEC 355 Laboratory 3D

Second session subject, 3 credit points

ELEC 456 Laboratory 4

First session subject, 3 credit points

The laboratory programmes for the BE and BSc(Eng) courses will normally cover the following topics:

Measuring equipment and techniques relevant to electric, magnetic and electro-mechanical circuits and systems.

Response of first and higher order systems; characteristics of sinusoidally excited circuits; harmonic analysis; amplifiers; regulated power supplies; wave shaping circuits; oscillators, digital circuits.

Transformers, d.c., induction and synchronous machines, dynamic characteristics; control circuits and simulation, frequency response, effects of feedback.

Advanced modern measurement equipment and techniques. Selected topics may include: circuit measurement with deterministic and random signals, R.F. and microwave measurements, digital and analog circuits and systems, advanced control circuits for machine.

ELEC 457 Thesis

Double session subject, 20 credit points

This comprises two projects

Each project involves the design and construction of experimental apparatus together with extensive laboratory testing. Where possible the projects are related to the research programme of the Department and are chosen to develop the students' initiative. Each student is required to deliver a seminar paper and to prepare a thesis on the result of the project work.

2. ELECTIVES

All one-session subjects

(3 hrs per week)

ELEC 404 Circuit Theory 4

Second session subject, 4 credit points

Network functions, introduction to network synthesis, filter design (classical and modern), digital and active filters.

TEXTBOOK

Ruston, H. & Bordogna, J. *Electric Networks, Functions, Filters and Analysis*. McGraw-Hill, 1966.

ELEC 424 Electric Energy Systems

Second session subject, 4 credit points

System modelling, application of the computer to load flow analysis. Optimum operating conditions, frequency and voltage control. Economic aspects of power transmission.

Unsymmetrical fault analysis, interruption theory, surges, transient stability. Transient characteristics of synchronous machines. System protection.

TEXTBOOK

Elgerd, O. I. *Electric Energy Systems Theory*. McGraw-Hill, 1971.

ELEC 462 Communications 2

Second session subject, 4 credit points

Scope: analysis and design of communication circuits for analog signal processing and frequency-domain multiplexing.

TEXTBOOK

Clark, K. K. & Hess, D. T. *Communication Circuits: Analysis and design*. Addison-Wesley, 1971.

ELEC 463 Signal Transmission

Second session subject, 4 credit points

Scope: wave propagation in cables, waveguides and atmosphere; radiation and antennas.

TEXTBOOK

Staniforth, J. A. *Microwave Transmission*. EUP, 1972.

ELEC 443 Control 3

Second session subject, 4 credit points

Concepts of state and state variables. Linear analysis. Concepts of controllability and observability. State feedback. Introduction to non-linear and optimal control and signal modulated systems.

TEXTBOOK

Elgerd, O. I. *Control System Theory*. McGraw-Hill, 1967.

ELEC 425 Generalised Machine Theory

Second session subject, 4 credit points

Development of machine models, transformations, methods of solution, small signal responses, transfer and weighting function representation, with emphasis on synchronous and induction machines.

TEXTBOOK

No set text.

ELEC 472 Electrical Properties of Materials

Second session subject, 4 credit points

Electric conduction and breakdown in solid, liquid and gaseous dielectrics; field strength calculations using Laplace and Poisson's equations. High voltage testing.

TEXTBOOK

No set text.

ELEC 481 Probability and Random Processes

Second session subject, 4 credit points

Probability theory; random variables, distribution and density functions, mean values and moments, ergodicity and stationarity; correlation functions, spectral densities; linear system response to random inputs; filtering and prediction.

TEXTBOOK

Thomas, J. B. *An Introduction to Applied Probability and Random Processes*. Wiley, 1971.

Industrial Electives

Students in full-time employment become eligible to include Industrial Electives in their course. Such inclusion is subject to the approval of the Chairman of the Department.

		Credit points
ELEC 181	Industrial Elective 1	6
ELEC 282	Industrial Elective 2	6
ELEC 283	Industrial Elective 3	6
ELEC 384	Industrial Elective 4	6
ELEC 485	Industrial Elective 5	6

A student enrolled in an Industrial Elective is required to submit written reports and to participate in seminars within the Department. These will deal with a critical analysis and reporting of general (or nominated specific) aspects of Professional Practice as experienced by the student. A Corporate Member of the Institution of Engineers representing the organisation wherein the Professional Practice is obtained must examine

and sign for such Professional Practice work before it can be accepted and assessed by the Departmental Assessment Committee.

3. SERVICING SUBJECTS

ELEC 291 Applied Electricity 1

Double session subject, 8 credit points

Topics selected from circuit theory, electronic devices and their application in linear and digital circuits.

TEXTBOOK

Smith, R. J. *Circuits, Devices & Systems*. 2nd ed. Wiley, 1970.

ELEC 292 Applied Electricity 2

Double session subject, 8 credit points

Electromagnetic devices, d.c. and a.c. machines, transmission systems, and instrumentation.

TEXTBOOK

As for Applied Electricity 1.

ELEC 293 Computers 1M

Double session subject, 5 credit points

Switching algebra, combination and sequential logic. Number systems and codes. Use and application of high-level and assembler language.

Digital computer organisation and control, arithmetic and memory elements, input-output devices.

Analogue computer components, setting up linear systems, time and magnitude scale factors.

TEXTBOOK

Scott, N. R. *Electronic Computer Technology*. McGraw-Hill, 1970.

ELEC 294 Introductory Systems Theory

First session subject, 6 credit points

Definition and measures of information; introduction to some of the properties of the measures and to the idea of channel capacity and coding. The relationship between thermo-dynamics and information. information and organisation.

Concept and examples of systems, dynamic properties; modelling; introduction to methods of analysis of linear systems with extension to non-linear problems. Analogue simulation and system model analysis by digital and analogue computer. Deterministic and stochastic responses and models; continuous and discrete signals.

REFERENCE BOOKS

Brillouin, L. *Science and Information Theory*. 2nd ed. Academic Press, 1971.
Truxal, J. G. *Introductory System Engineering*. McGraw-Hill, 1972.
Patten, B. C. *Systems Analysis and Simulation in Ecology*. Vol. 2. Academic Press, 1972.
Heinmets, F. *Concepts and Models of Biomathematics*. Marcel Dekter, 1969.
Bertalanfly, L. *General Systems Theory*. Allen Lane, 1971.

ENGLISH

The Department of English offers subjects in English Language at 100-, 200- and 400 (Honours)-level and in English Literature at 100-, 200-, 300- and 400 (Honours)-level in the BA Degree course.

A comprehensive course of study in English comprises not less than 52 credit points taken from 100-, 200- and 300-level subjects (excluding subjects 207 and 305). Entry to 400-level English is determined by Senate on the recommendation of the Departmental Chairman.

Each subject comprises at least 28 hours (2 hours per week per session) of lectures, seminars and tutorials. Not all subjects will be offered at both day and evening times. Furthermore, the Departmental Chairman reserves the right to place a limit on numbers in particular subjects and to advise students on the subjects best suited to their qualifications and purposes. As many of the subjects described in the following pages will be offered as can be with the staff available.

In all subjects, students are required to hand in written assignments. English IV Honours students are also required to write a thesis of 10,000 words on a topic approved by the Professor of English.

All students are required to possess *The Concise Oxford English Dictionary* and H. Coombes' *Literature and Criticism* (Penguin) in addition to the texts prescribed for the subjects in which they are enrolled. Students intending to major in English are also advised to obtain *The Oxford Anthology of English Literature*, 2 vol. edt., ed. Kermode and Hollander.

100-level

ENGLISH LITERATURE

ENGL 101 Introduction to Modern Literature

Double session subject, 12 credit points

First Session

Critical Method and Modern Poetry

BASIC READING

Brooks, C. & Warren, R. P. *Understanding Poetry*. 3rd ed. Holt, Rinehart & Winston.
Mack, Dean & Frost, eds. *Modern Poetry*. 2nd ed. Prentice-Hall.
Hollander, ed. *Poems of Our Moment*. Pegasus.

Second Session

Critical Method and Modern Prose

BASIC READING

Warren, R. P. & Erskine, A. eds. *Short Story Masterpieces*. Dell.
D. H. Lawrence. *The Prussian Officer, Lady Chatterley's Lover*. Penguin.
The Essential Hemingway. Penguin.
Joseph Conrad. *Lord Jim*. Penguin.
James Joyce. *Dubliners. A Portrait of the Artist as a Young Man*. Penguin.
Graham Greene. *Brighton Rock*. Penguin.
Patrick White. *The Solid Mandala, Riders in the Chariot*. Penguin.

100-level

ENGLISH LANGUAGE

ENGL 102 Introduction to English Language Studies

Double session subject, 12 credit points

First Session

(A) The Development of English up to the Middle English Period

BASIC READING

Baugh, A. C. *History of the English Language. 2nd ed.* Appleton-Century Crofts.

(B) Introduction to Medieval Life and Thought

BASIC READING

Heer, F. *The Medieval World.* Mentor.
Ker, W. P. *Epic and Romance.* Dover.

Second Session

(A) The Development of English from the Middle English Period to the present day

BASIC READING

Mitchell, A. G. & Delbridge, A. *The Pronunciation of English in Australia.* Rev. ed. Angus & Robertson, 1965.

(B) Introduction to Early English Language and Literature: a study of Chaucer's language and of selected "Canterbury Tales"

BASIC READING

Cook, ed. *The Canterbury Tales of Geoffrey Chaucer.* Anchor.

200-level

ENGLISH LITERATURE

First Session

ENGL 207 Utopian and Anti-Utopian Literature

First session subject, 4 credit points

BASIC READING

More. *Utopia.* Penguin.
Johnson. *Rasselas.* Routledge.
Swift. *Gulliver's Travels.* Penguin.
Morris. *News from Nowhere.* Routledge.
Butler. *Erewhon.* Penguin.
Orwell. *Nineteen Eighty-four.* Penguin.
Durrell. *The Dark Labyrinth.* Faber.
Golding. *Lord of the Flies.* Faber.
Frayne. *A Very Private Life.* Penguin.
Huxley. *Island.* Penguin.

BACKGROUND READING

Plato. *The Republic*. Penguin.

ENGL 211 Romantic Poetry

First session subject, 4 credit points

BASIC READING

Blake, Penguin Poets.
Wordsworth. *Selected Poetry*. ed. Van Doren. Modern Library.
Coleridge. *Selected Poetry*. ed. Stauffer. Modern Library.
Byron. *Poems*. Oxford Standard Authors.
Keats. *Complete Poetry and Selected Prose*. ed. Briggs. Modern Library.

Second Session

ENGL 210 Eighteenth Century Fiction

Second session subject, 4 credit points

BASIC READING

John Bunyan. *The Pilgrim's Progress*. Penguin.
Daniel Defoe. *Robinson Crusoe*. Penguin.
Henry Fielding. *Tom Jones*. Penguin.
Laurence Sterne. *Tristram Shandy*. Penguin.
Anne Radcliffe. *The Mysteries of Udolpho*. O.U.P.
Jane Austen, *Northanger Abbey, Emma*. Penguin.

ENGL 212 Australian Literature

Second session subject, 4 credit points

BASIC READING

Kenneth Slessor. *Poems*. Angus & Robertson.
A. D. Hope. *Collected Poems 1930-1970*. Angus & Robertson.
Judith Wright. *Collected Poems 1942-1970*. Angus & Robertson.
Craig, ed. *Twelve Poets 1950-1970*. Jacaranda.
Martin Boyd. *The Cardboard Crown*. Lansdowne.
Christina Stead. *For Love Alone*. Angus & Robertson.
Patrick White. *The Eye of the Storm*. Penguin.
David Williamson. *The Removalists*. Currency Press.
Dorothy Hewett. *The Chapel Perilous*. Currency Press.
Peter Kenna. *A Hard God*. Currency Press.

Additional Subject

ENGL 215 Modern Drama

Second session subject, 4 credit points

BASIC READING

August Strindberg. "Miss Julie" and "Dream Play" in *Six Plays*. Doubleday, Anchor.
Henrik Ibsen. "Rosmersholm" in *The Master Builders*. Penguin.
Anton Chekhov. "The Cherry Orchard" in *Plays*. Penguin.
Bernard Shaw. *Man and Superman*. Penguin.

Luigi Pirandello. *Six Characters in Search of an Author.* Heinemann Educational.
Bertolt Brecht. *Mother Courage, Life of Galileo.* Methuen.
Tennessee Williams. "A Streetcar Named Desire" in *Sweet Bird of Youth.* Penguin.
Eugene O'Neill. *Long Day's Journey into Night.* Cape.
Samuel Beckett. *Waiting for Godot.* Faber.
Harold Pinter. *The Caretaker.* Methuen.
Peter Weiss. Marat/Sade. Calder & Boyers.
Peter Handke. *Kaspar.* Methuen.
Tom Stoppard. *Rosencrantz and Guildenstern are Dead.* Faber.
Edward Bond. *Lear.* Methuen.
John Osborn. *Look Back in Anger.* Faber.

200-level

ENGLISH LANGUAGE

ENGL 213 Old English

Double session subject, 8 credit points
First session

(A) Old English

An introduction to the language, literature and culture of the Anglo-Saxons.

Second session

(B) Old English Poetry and Prose

BASIC READING

Markwardt & Rosier. *Old English Language and Literature.* Norton.

ENGL 214 Middle English

Double session subject, 8 credit points
First session

(A) Early Middle English

An introduction to the language and literature of England between the Norman Conquest and the Age of Chaucer.

Second session

(B) Middle English Literature

Poetry, prose and drama of the later Middle English period.

BASIC READING

Mossé, F. *A Handbook of Middle English.* tr. Walker, Johns Hopkins Press.
Second Session

300-level

ENGLISH LITERATURE

First Session

ENGL 310 Chaucer

First session subject, 6 credit points

BASIC READING

Robinson, F. N. ed. *The Works of Geoffrey Chaucer*. Houghton-Mifflin.

ENGL 311 Renaissance Poetry

First session subject, 6 credit points

BASIC READING

Kellogg & Steel, ed. *Edmund Spenser, The Faerie Queene, Books I and II*. Odyssey.

Gardner, ed. *The Penguin Book of Metaphysical Verse*.

Frye, ed. *Paradise Lost and Selected Poetry and Prose of John Milton*. Holt, Rinehart & Winston.

Additional Subject

ENGL 314 Australian Fiction to 1920

First session subject, 6 credit points

BASIC READING

Henry Kingsley. *The Hillyars and The Burtons*. Sydney U.P.
Marcus Clarke. *For the Term of His Natural Life*. Pacific.
Rolf Boldrewood. *Robbery Under Arms*. St Martin's Library.
Henry Lawson. *Selected Stories*. ed. Matthews, Rigby.
Joseph Furphy. *Such is Life*. Angus & Robertson.
H. H. Richardson. *The Fortunes of Richard Mahony*. Penguin.

Second Session

ENGL 312 Shakespeare and His Contemporaries

Second session subject, 6 credit points

BASIC READING

Shakespeare. *Love's Labour Lost, Richard III, Macbeth, Lear, Coriolanus, The Winter's Tale* in *Shakespeare's Collected Works*. ed. Alexander, Collins.

Marlowe. *Dr. Faustus*. Johnson. *Volpone*. Webster. *The Duchess of Malfi*.

ENGL 313 Restoration and Augustan Literature

Second session subject, 6 credit points

BASIC READING

Miner, ed. *Selected Poetry and Prose of John Dryden*. Modern Library.
Daniel Defoe. *Moll Flanders*, New American Library, *Journal of the Plague Year*. Penguin.
Jonathan Swift. *Gulliver's Travels and Other Writings*. ed. Quintana, Modern Library.
The Poems of Alexander Pope. ed. Butt (Twickenham one-vol. edt.). Methuen.
Samuel Richardson. *Pamela*. Vol. 1. Everyman.
Henry Fielding. *Joseph Andrews*. Signet.
Samuel Johnson. *Selected Writings*. Penguin.
Hardy, J. P., ed. *Rasselas*. O.U.P. Paperback.
Tobias Smollett. *Humphry Clinker*. Penguin.
Laurence Sterne. *Sentimental Journey*. Penguin. *Tristram Shandy*, Penguin.
Gosse, ed. *Restoration Plays*. Everyman.
Quintana, ed. *Eighteenth Century Plays*. Modern Library.

400-level

ENGL 400 English IV Honours

48 credit points

First Session

Critical Practice and Theory: Classic, Romantic and Modern

(A) Classic.

BASIC READING

Classical Literary Criticism. tr. Dorsch, Penguin.
Selections from Sidney, Pope, Wordsworth, Keats, Emerson, Whitman, Yeats, Pound and Eliot.

Elizabethan Drama

BASIC READING

Tudor Interludes. Penguin.
McIlwraith, ed. *Elizabethan Tragedy*. World Classics, O.U.P.
McIlwraith, ed. *Five Elizabethan Comedies*. World Classics, O.U.P.
Armstrong, ed. *Elizabethan History Plays*. World Classics, O.U.P.
Marlowe. *The Complete Plays*. Penguin.
Shakespeare. *Comedy of Errors, Midsummer Night's Dream, Much Ado About Nothing, As You Like It, Troilus and Cressida, Measure for Measure*. New Pelican Shakespeare.

Renaissance Poetry

BASIC READING

Muir, ed. *Thomas Wyatt, The Collected Poems*. Muses Library.
Kimbrough, ed. *Philip Sidney, Selected Prose and Poetry*. Holt, Rinehart & Winston.
Smith & de Selincourt, eds. *The Poetical Works of Edmund Spenser*. Oxford Standard Authors.
Shakespeare's Sonnets. New Cambridge ed., C.U.P.
Chambers, ed. *The Oxford Book of Sixteenth-Century Verse*. O.U.P.

Literary Scholarship

An introduction to Paleography, with special reference to Early Tudor textual problems.

(A) Fourteenth Century Literature

A study of the works of Chaucer and his contemporaries.

BASIC READING

The Works of Chaucer, Langland, Gower and the Gawain poet.

(A) Beowulf and Related Heroic Poetry

BASIC READING

Klaeber, ed. *Beowulf* and the Fight at Finnsburg. 3rd ed., Heath & Co.

Second Session

Critical Practice and Theory: Classic, Romantic and Modern

(B) Romantic and Modern.

BASIC READING

As for first session.

Jacobean Drama

Selected plays by Jonson, Chapman, Marston, Tourneur, Webster, Middleton, Beaumont and Fletcher, Massinger.

Renaissance Prose

BASIC READING

Thomas More. *Utopia*. Everyman.
Kimbrough, ed. *Philip Sidney, Selected Prose and Poetry*. Holt, Rinehart & Winston.
Selected sermons of Latimer, Andrews, Playfere and Donne (texts to be made available).
Lawlis, ed. *Elizabethan Prose Fiction*. Odyssey.
Johnston, ed. Francis Bacon, *The Advancement of Learning and New Atlantis*. Oxford Paperback English Texts.
Salgado, ed. *Cony-Catchers and Bawdy Baskets*. Penguin.

(B) Fourteenth Century Literature

A study of the works of Chaucer and his contemporaries.

BASIC READING

As for first session.

(B) Beowulf and Related Heroic Poetry

BASIC READING

As for first session.

FRENCH

100-level

FREN 103 French 103

Double session subject, 12 credit points

This is an audio-visual course for beginners or near-beginners in French. Initially there is concentration exclusively on hearing and speaking, with the gradual introduction of written expression. Classes will be in tutorial groups of no more than 15 students and extensive use will be made of the language laboratory. Successful completion of French 103 qualifies students for entry into French 203 (planned for introduction in 1977).

TEXTBOOK

Moget, M. T. *De Vive Voix* (Livre de l'élève). Didier, Paris, 1972.

FREN 111 French 111

First session subject, 6 credit points

This is a first session subject for those who have studied French to N.S.W. Higher School Certificate level 2 standard. It consists of 2 parts: French 111 language and French 111 civilization.

French 111 language

In this course the principal emphasis is on the improvement of aural comprehension of normal French conversation and the ability to express relatively simple ideas in grammatically correct French. Major grammatical points are treated as they occur, and regular attention is given to accurate discrimination and reproduction of French sounds and sound patterns.

TEXTBOOKS

Helbling, R. & Barnett, A. *L'Actualité Française*. New York, Holt, Rinehart & Winston, 1967.
Helbling, R. & Barnett, A. *Interviews pour l'Actualité Française*. New York, Holt, Rinehart & Winston, 1967.

REFERENCE BOOKS

Mansion, J. E. ed. *Harrap's Shorter French and English Dictionary*. London, Harrap 2 volumes (may be purchased in 1 volume).
Micro-Robert. Paris, Société du Nouveau Littré.
Whitmarsh, W. F. H. *Complete French Course*. London, Longmans, 1971.

French 111 civilization

This course is designed to familiarize students who have little background in French studies other than the language itself, with French art, literature and society. The course is situated in an historical perspective but particular emphasis is placed on literature and painting from the French Renaissance to the 19th century and some attention is given to the political development of France from the Revolution to the present day.

TEXTBOOK

Thoraval. *Les grandes étapes de la civilisation française*. Paris, Bordas.

FREN 112 French 112

Second session subject, 6 credit points

This is a second session subject for students who have successfully completed French 111. It consists of 2 parts: French 112 language and French 112 literature.

French 112 language

The programme of aural comprehension begun in French 111 is sustained, but with regular opportunity provided for the expression of ideas in small groups on subjects of interest chosen by the student. The particular theme chosen by each student is also used as a basis for the written expression required during the session.

TEXTBOOKS

As for French 111, *plus*

Reportage France. BBC Publications, 1973.

REFERENCE BOOKS

As for French 111.

French 112 literature

Through an examination of several French short stories and short novels, this course serves to introduce students to techniques of literary analysis.

TEXTBOOKS

Flaubert, G. *Trois contes*. Paris, Gallimard (Collection "Folio" no. 424).
Gide, A. *La Symphonie pastorale*. Paris, Gallimard (Collection "Folio" no. 18).
Camus, A. *L'Etranger*. Paris, Gallimard (Collection "Folio" no. 2).
Pinget, R. *Autour de Mortin*. London, Methuen (Methuen's 20th century French texts).

200-level

FREN 211 French 211

First session subject, 9 credit points

This is a first session subject for students who have successfully completed French 112. It consists of 2 parts: French 211 language and French 211 literature.

French 211 language

This course consists of a program of aural comprehension in the language laboratory; practice in spoken French in conversation groups; written expression in the form of extension of ideas presented in short extracts; and a small amount of more formal grammar and translation work.

TEXTBOOK

Benamou, M. & Cardunier, J. *Le Moulin à paroles*. Paris, Hachette, 1972.

French 211 literature

The Psychological Novel in France

The development of this literary genre is illustrated by the study of various significant works over a period of four centuries.

TEXTBOOKS

La Fayette, Mme de. *La Princesse de Clèves*. Paris, Hachettte (Livre de poche no. 374).
Prévost. *Manon Lescaut*. Paris, Gallimard (Collection "Folio" no. 25).
Constant, B. *Adolphe*. Paris, Hachette (Livre de poche no. 360).
Radiguet, R. *Le Bal du comte d'Orgel*. Paris, Hachette (Livre de poche no. 435).
Mauriac, F. *Thérèse Desqueyroux*. London, University of London Press, 1964.

FREN 212 French 212

Second session subject, 9 credit points

This is a second session subject for students who have successfully completed French 211. It consists of 2 parts: French 212 language and French 212 civilization.

French 212 language

This course consists of analysis of recorded and written documents to develop familiarity with different styles of spoken and written French; continued development of speaking and aural comprehension skills; and contrastive grammar—the verb systems of French and English.

TEXTBOOKS

As for French 211.

French 212 civilization

This course considers the evolution of French literary and artistic styles from the late 19th century to the present day. Impressionism, symbolism, cubism, surrealism and abstract art are situated in relation to contemporary literary trends and representative texts have been chosen to illustrate the development of French intellectual life. Major political events which have been instrumental in shaping French society, institutions and intellectual climate are also discussed.

TEXTBOOKS

Proust, M. *Un amour de Swann*. Paris. Gallimard (Collection "Folio" no. 571).
Sartre, J.-P. *Huis clos, suivi de Les Mouches*. Paris, Gallimard (collection "Folio" no. 3).
Robbe-Grillet, A. *La Jalousie*. Paris, Editions de Minuit.
Butor, M. *6 810 000 litres d'eau par seconde*. Paris, Gallimard, 1965.
Pérec, G. *Les Choses*. Paris, J'ai lu, no. 259.

GENERAL STUDIES

It is a requirement of some undergraduate courses* that the program of study includes certain subjects of a general nature in addition to those vocational subjects in which the student must specialise.

Since 1971 the normal general studies requirement has been 168 hours for full-time courses of at least four years' duration and 126 hours for three-year full-time courses. The corresponding figures for part-time courses are 168 hours for courses of over six years and 126 hours for courses of six years and under. This means that students in the longer courses will take four subjects and those in the shorter courses will take three.

The General Studies program at the University of Wollongong consists of fourteen-week subjects, each of which in turn consists of fourteen lectures and seven tutorials.

The programme is designed to cover various aspects of the modern world, its thought and artistic expression.

Where a subject is offered in two parts, Part II will allow students who have shown interest and ability in Part 1 to pursue the subject further and at greater depth in the second session.

The subjects offered in 1976 are:

First Session:

Aspects of Modern Psychology, Part I
Contemporary History, Part I
Architecture, Part I
Introduction to English Linguistics
A History of Modern Art, Part I
Asia in the Twentieth Century, Part I
Developments in Present Day Music

Second Session:

Aspects of Modern Psychology, Part II
Contemporary History, Part II
Architecture, Part II
A History of Modern Art, Part II
Aspects of Industrial Society
Asia in the Twentieth Century, Part II

GENE 010 Aspects of Modern Psychology, Part I

First session subject, 2 credit points

The course introduces students to developments in contemporary psychology, with special emphasis on the relevance of recent research to basic human problems: human development; control of behaviour; identity and the identity crisis; conformity, compliance and integrity; conflict and conflict resolution. Presentation will be aimed at stimulating interest and encouraging further reading in this subject.

TEXTBOOK

Werthmeimer, M. ed. *Confrontation: Psychology and the Problems of Today*. Scott Foresman, 1970.

REFERENCE BOOKS

A list of additional references will be supplied at the beginning of the course.

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* Not those offered for the Bachelor of Arts Degree.

GENE 011 Contemporary History, Part I

First session subject, 2 credit points

This course seeks to develop an awareness of the contemporary world through the study of some important issues. Contemporary history takes problems that are actual in the world today and examines them from the time they first take recognizable shape. The focus will be on events since 1945, but the roots of the problems will often necessitate a backward look to earlier periods.

The first part of the course will lay the necessary foundation (especially for students who have not seriously studied the subject before) and will then begin the study of certain issues like the changing face of Communism, Superpowers, the Cold War, and World Co-operation.

TEXTBOOKS

Barraclough, G. *An Introduction to Contemporary History*. Penguin.
Henderson, J. L. ed. *Since 1945: Aspects of Contemporary History*. Methuen.

REFERENCE BOOKS

A comprehensive list of reference books dealing with particular topics in Parts I and II will be provided at the beginning of the course.

GENE 012 Architecture, Part I

First session subject, 2 credit points

The course is offered in two closely related parts, the second designed for those students who have developed an understanding of and interest in the ideas presented in the first session.
The aim is to demonstrate how modern architecture is a mirror of our times, just as the architecture of an earlier age reflected that particular age. The main focus will be on "the walls around us" now, though this will necessarily include reference to styles of other periods.

TEXTBOOKS

Pevsener, N. *An Outline of European Architecture*. Pelican.
Richards, J. M. *An Introduction to Modern Architecture*. Pelican.

REFERENCE BOOKS

Cichy, B. *Architecture of the Ancient Civilization in Colour*. Thames & Hudson.
Fletcher, B. *A History of Architecture*. Batsford.
Freeland, J. M. *Architecture in Australia*. Cheshire.

GENE 014 A History of Modern Art, Part I

First session subject, 2 credit points

The course will be offered in two parts, the first providing the background to an understanding of more traditional as well as more recent art, the second looking at art in Australia.

TEXTBOOKS

Lucie-Smith, E. *Movements in Art since 1945*. Thames & Hudson.
Read, H. *A Concise History of Modern Painting*. Thames & Hudson.

REFERENCE BOOKS

Bazin, G. *A Concise History of Art, Part II*. Thames & Hudson.
Horton, M., ed. *Art in Australia*. Ure Smith.
Whelpton, B. *Art Appreciation Made Simple*. W. H. Allen.

GENE 431 Asia in the Twentieth Century, Part I

First session subject, 2 credit points

Part I will deal with the course and consequences of World War II in the Pacific; economic, political, social and foreign policy problems since 1945 in relation to Japan, India, Pakistan and the nations of S.E. Asia; and in particular with the new nationalism and its interaction with communism, democracy and authoritarianism. The wars in Indo-China and Korea are examined in the light of new theories of warfare.

TEXTBOOKS

Bastin, J. & Benda, H. J. *A Modern History of South-East Asia*. Prentice-Hall.
Fitzgerald, F. *Fire in the Lake*. Random House.
Macmahon Ball, W. *Australia and Japan*. Nelson.
Story, R. *A History of Modern Japan*. Pelican.
Wint, G. *Asia Handbook*. Penguin.

GENE 020 An Introduction to English Linguistics

First session subject, 2 credit points

The subject will introduce students to the main approaches of linguistics as applied to a study of English. Students intending to enrol in this subject are advised that it assumes a basic understanding of the language as given in the first session subject English Language and Literature.

TEXTBOOKS

Fromkin, V. & Rodman, R. *An Introduction to Language*. Holt, Rinehart & Winston, 1974.
Stork, F. C. & Widdowson, J. D. A. *Learning about Linguistics*. Hutchinson Educational, 1974.

REFERENCE BOOKS

A list of reference books and articles will be provided at the beginning of the course.

GENE 021 Aspects of Modern Psychology, Part II

Second session subject, 2 credit points

In Part II of this course, special attention will be given to such questions as: racism and race relations; violence and aggression; man and technology; education, creativity, and the student; the psychology and treatment of abnormal behaviour.

TEXTBOOK

Wertheimer, M. ed. *Confrontation: Psychology and the Problems of Today*. Scott Foresman, 1970.

REFERENCE BOOKS

A list of reference books will be supplied at the beginning of the course.

GENE 022 Contemporary History, Part II

Second session subject, 2 credit points

The second part of the course will further explore such questions as the growth of nationalism in Africa and Asia; the Middle East; Latin America; democracy in theory and practice; race relations; twentieth century revolutions and guerrilla warfare.

TEXTBOOKS

As for *Contemporary History, Part I, plus:*

Goldsmith, E. & others, eds. *A Blueprint for Survival.* Penguin, Harmondsworth, 1972 (First publ. as Vol. 2, No. 1 of *The Ecologist*, 1972).

Osborne, M. *Region of Revolt.* Penguin.

Wilson, D. *Asia Awakes.* Penguin.

REFERENCE BOOKS

As for *Contemporary History, Part I.*

GENE 023 Architecture, Part II

Second session subject, 2 credit points

Man and Architecture. Building on the first session course, this will pursue more closely the concept of architectural expression, considering how this has reflected and can be expected to reflect man's outlook in the future. The hypothesis would thus contemplate the structure of man's future environment while remaining aware of previous cycles in the history of civilization.

TEXTBOOKS

As for *Architecture, Part I, plus:*

Freeland, J. M. *Architecture in Australia.* Cheshire.

REFERENCE BOOKS

A list of reference material will be supplied at the beginning of Part II.

GENE 024 A History of Modern Art, Part II

Second session subject, 2 credit points

This part of the course goes on to deal with the development of art in Australia, with special attention to certain major artists and movements.

TEXTBOOK

Smith, B. *Australian Painting.* 2nd ed., 1972.

RECOMMENDED READING

As for *History of Modern Art, Part I,* but additional references to Australian Art will be given during the course.

GENE 025 Aspects of Industrial Society

Second session subject, 2 credit points

A one-session subject which considers some of the social and economic aspects of industrial society. Topics to be discussed include the impact of industrial society on the individual, its effects on the quality of life, the complexity of social and economic institutions and organizations, automation and changing industrial technology, the problems of poverty in an affluent society and the causes and consequences of rapid social change.

There will be 1½ hours per week made up of lectures and seminars: a 1½ hour examination paper will be held at the end of the session.

A detailed reading list for each topic and assignment will be handed out at the first lecture.

TEXTBOOKS

Faunce, W. A. *Problems of an Industrial Society*. McGraw-Hill.
Pen, J. *Harmony and Conflict in Modern Society*. McGraw-Hill.

GENE 026 Developments in Present Day Music

First session subject, 2 credit points

The subject will seek to give an understanding and appreciation of twentieth century music by means of discussion and illustration. The main points to be dealt with are: recent developments in music; changing elements in music's vocabulary; the development of jazz; electronic music; the music of Asia and its influence on modern European music; and the making of music in Australia at the present time.

TEXTBOOKS

Covell, R. *Australia's Music: Themes of a New Society*. Sun Books, Melbourne, 1967.
Salzman, E. *Introduction to 20th Century Music*. Prentice-Hall.

RECOMMENDED READING

Abraham, C. *A Hundred Years of Music*. Duckworth, 1964.
Malm, W. P. *Music Cultures of the Pacific, The Near East and Asia*. Prentice-Hall, 1967.
Myers, R. ed. *Twentieth Century Music*. John Calder, 1960.
Schuller, G. *Early Jazz: Its Roots and Music Development*. O.U.P., 1961.

GENE 432 Asia in the Twentieth Century, Part II

Second session subject, 2 credit points

Part II will concentrate on China against the background outlined in Part I. Finally Australia will be discussed as an extension of Asia.

TEXTBOOKS

Clubb, O. Edmund. *Twentieth Century China*. Columbia University Press.
Schurman, F. & Schell, O. ed. *China Readings; Republican China, vols 2 & 3*. Penguin.

WOMEN'S STUDIES

Women's Studies will comprise 2 interdisciplinary subjects in 1976; both at 200-level for 9 credit points each. One to be offered in Session 1 and one in Session 2.

It is envisaged that staff members from at least six departments in two faculties will be involved.

GENE 211 Women in Society I

First session subject, 9 credit points

Contact hours Lecture 1; Tutorial 2; and Seminar 2 (per fortnight).

Assessment Will be based on written assignments.

Pre-req. 24 credit points

This subject seeks to examine the changing role of women in society since 1850, integrating a sociological, historical and literary perspective. The lecture topics are as follows:

1. A sociological survey of Western Industrialized society and Australian society in particular.
2. Conditions of nineteenth century British society leading to the development of feminism.
3. George Eliot, *The Mill on the Floss.*
4. The concept of social change. A discussion, with reference to the previous lecture, of the socialization of nineteenth century women and its relevance to women in modern society.
5. The women's suffrage movement: Britain 1850-1928.
6. Henry James. *The Bostonians.*
7. The relationships of men and women in Western industrialized society.
8. Oscar Wilde. *The Importance of Being Earnest.* G. B. Shaw. *Candida, Mrs Warren's Profession.*
9. The education of women in nineteenth century Britain.
10. The education of women in the twentieth century.
11. D. H. Lawrence. *Women in Love.*
12. The effects of World War I on the status of women in Britain.
13. Virginia Woolf. *To the Lighthouse.*

The literary texts will be taught with reference to the sociological and historical component of the subject, and the lectures on sociology and history will draw, to a certain extent, on the literary texts for illustrations.

TEXTBOOKS

Eliot, G. *The Mill on the Floss.*
James, H. *The Bostonians.*
Lawrence, D. H. *Women in Love.*
Shaw, G. B. *Plays Pleasant, Plays Unpleasant.*
Wilde, O. *Plays.*
Woolf, V. *To the Lighthouse.*
(All these texts are available in Penguin editions except for *The Mill on the Floss* which is, however, available in several paperback editions.)

REFERENCE BOOKS

de Beauvoir, S. *The Second Sex.* London, Foursquare, 1961.
Encel, S., MacKenzie, N. & Tebbutt, M. *Women and Society: An Australian Study.* Melbourne, Cheshire, 1974.

Engels, F. *The Origin of the Family, Private Property and the State, 1854.* (Moscow, Progress Publishers, 1972).
Fulford, R. *Votes for Women.* (London, Faber, 1957).
Mitchel, J. *Women's Estate.* (London, 1972).
Shepard, J. *Kaleidoscope: A Book of Adapted Readings for Introductory Sociology.* (N.Y., 1973.)

GENE 212 Women in Society II

Second session subject, 9 credit points

Contact hours Lecture 2; Tutorial 1; and Seminar 2 (per fortnight).

Assessment Will be based on written assignments.

Pre-req. 24 credit points

This subject will consist of two concurrent strands.

Strand A

This will analyze the proposition that science, with its privileged place in society and culture, and under the guise of its assumed objectivity, has contributed to the oppression of women through its theory and practice, which have both reflected and reinforced traditional sex roles and stereotypes and the institutions built upon them.

Outline of Topics

1. The Objectivity of Science

It has been well established in the philosophy of science that scientific facts are to some extent theory laden, and that scientific theories to some extent reflect the philosophical, cultural and ideological values of their authors.

Science is not entirely objective and neutral; it plays a double role in that it reflects social and cultural values and at the same time reinforces them by rationalizing them within an "objective" theory. This suggests that to a considerable extent our conception of reality is itself socially constructed; and that no human thought, with the possible exception of mathematics and parts of the physical sciences is immune from the ideological influences of its social context.

2. The Role of Ideology in Determining Scientific Theories and Practice

This will be discussed with reference first to some well known examples such as the Lysenko controversy and theories of territoriality. Biological theories about women will then be examined in greater detail, focusing on a historical treatment of theories of menstruation, primate studies and sexual selection.

3. Detailed Examination of Some Psychological Theories About Women

(a) Differences between Males and Females
(i) Differences in social position;
(ii) In function (role);
(iii) In ability;
(iv) In personality.

(b) Sex Differences as Biologically Based
(i) Sex Differences in subhuman species;
(ii) Physiological sex differences in humans;
(iii) Hormonal control of: (a) sexual behaviour;
(b) non-sexual behaviour (eg. menstrual cycle).

(c) Physiologically Based Theories of Women's Role and Personality

(i) "Anatomy is Destiny" argument—immutability of role and personality;
(ii) Influence on position of women (psychologically and sociallly) of the ability to bear children;
(iii) Female sexuality and its role associations.

(d) Socially and Culturally Based Theories of Women's Position

(i) Influence of socialization process;
(ii) Sex-role stereotypes and the influence of these roles and personality;
(iii) "Masculinity"—"Femininity" labels;
(iv) Sex differences and their cultural "push", eg. achievement and the "motive to avoid success".

4. A Look at Woman's Role in Society

This will focus on scientifically reinforced interpretations of woman's role in society, with particular reference to psychology. What are the implications for society of the acceptance or rejection of the biological or cultural views?

5. Woman's Role in the Scientific Community

The reasons for the conspicuous absence of women from the scientific professions will be examined. The role that women could play in science, and the possibilities of developing a feminist interpretation of science will be explored.

TEXTBOOKS

Bardwick, T. ed. *Readings in the Psychology of Women*. New York, Harper & Row, 1972.
Herschberger, R. *Adam's Rib*. New York, Harper & Row, 1970.

REFERENCE BOOKS

Bardwick, J. *Psychology of Women: A Study of Bio-cultural conflicts*. New York, Harper & Row, 1971.

Bardwick, J. ed. *Feminine Personality and Conflict*. Calif. Brooks/Cole, 1970.

Berger, P. L. & Luckmann, T. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. (New York, Doubleday, 1966).

Chesler, P. *Women and Madness*. New York, Doubleday & Co., 1972.

Dahlstrom, E. ed. *The changing roles of men and women*. Boston, Beacon Press, 1971.

Easlea, B. *Liberation and the Aims of Science*. (London, Chatto and Windus, 1973).

Fogarty, Rapoport & Rapoport. *Sex, Career and Family*. London, George Allen & Unwin, 1971.

Friedman, R., Richart, R. M. & Vande Wiele, R. L. *Sex differences in behaviour*. U.S.A., John Wiley & Sons, 1974.

Goldman, G. & Milman, D. *Modern Woman: Her Psychology and Sexuality*. Springfield, Ill., Charles C. Thomas, 1969.

Huber, J. ed. *Changing women in a changing society*. U.S.A., University of Chicago Press, 1973.

Maccoby, E. E. ed. *The development of sex differences*. Tavistock, 1971.

Mead, M. *Male and Female*. Penguin.

Nash, J. *Developmental Psychology: A Psychobiological Approach*. New York, Prentice-Hall, 1970.

Roszak, B. & Roszak, T. ed. *Masculine/Feminine. Readings in Sexual mythology and the liberation of women*. U.S.A., Harper & Row, 1969.

Tyler, L. *The Psychology of Human Differences*. (Appleton-Century-Crofts).

Watson, J. D. *The Double Helix*. (London, Weidenfeld & Nicholson, 1965).

Strand B

This will examine the economic and political role of women in different societies.

In order to analyze and understand the economic and political situation of women it is essential to consider the nature of the societies in which they live.

The methods of production in any particular society strongly influence the social and political structure, institutions and ideology of that society.

Changes in these elements are related to changes in methods of production, while the nature of changes in methods of production is in turn influenced and limited by existing institutions and ideology.

The occupational, class and political roles of individuals are determined by the economic, political and social structure of their particular society.

Thus, the differences in situation of similar individuals in different societies can be systematically related to differences in social structure.

It is proposed that the economic and political role of women in different societies be examined in the light of the above statement.

Outline of Topics

1. The Interaction between Economic, Political and Social Structures and Beliefs About Them

In particular, the relationship between methods of production, technology, science and ideology.

2. Women in Pre-industrial European Societies

The organization of production and its relationship with political and social structures.

3. The Changes that occurred with the Industrial Revolution

The impact of technological change on occupational roles and social institutions and the associated changes in class structure. The effect of these changes on the situation of women in different classes.

4. Women in Modern Underdeveloped Countries

The effects of different methods of agricultural production and property rights on the status of women. The diverse nature of social and political institutions in these economies and their effect on the role of women.

5. Modern Industrial Economies

(a) The importance of class as one of the factors determining the position of women. The inter-relationship between class, ideology and education.

(b) Patterns of employment and occupational change of women in relation to overall patterns of employment. Participation rates and changes in industrial structure, in particular the expansion of the service industries. The question of equal pay for equal work.

(c) The family as an economic unit: production and consumption aspects.

(d) Women's participation in the political process. Structural and ideological limitations on the political power of women.

(e) Rights and Realities: social and ideological pressures that inhibit the exercise and expansion of the legal rights of women.

REFERENCES

Augrist, S. S. *Careers and Contingencies: How College Women Juggle with Gender*. London, Martin Robertson, 1975.

Aries, P. *Centuries of Childhood*. Penguin, 1973.

Basil, D. C. *Women in Management*. London, Martin Robertson, 1973.

Beard, M. R. *Women as a Force in History: A Study in Traditions and Realities*. 1st published 1946 Paperback edition, Collier Books, 1972.

Boserup, E. *Woman's Role in Economic Development*. London, Allen & Unwin, 1970.

Duverger, M. *The Political Role of Women*. Paris, U.N.E.S.C.O., 1955.

Encel, S., Mackenzie, N. & Tebbutt, N. *Women in Society: An Australian Study*. Melbourne, Cheshire, 1974.

Fogarty, M. P., Rapoport, R. & Rapoport, R. N. *Sex, Career and Family*. London, Allen & Unwin, 1971.

Glayer-Malbin, ed. *Woman in a Man made World*. N.Y., Rand McNally, 1974.

Hartman, M. & B., Lois, W. eds. *Clio's Consciousness Raised: New Perspectives on the History of Women*. N.Y., Harper Torchbooks, 1974.

Kirkpatrick, J. C. *Political Woman*. N.Y., Basic Books, 1974.

Krefs, J. M. *Sex in the Market Place: American Women at Work*. Baltimore, Johns Hopkins Press, 1971.

Lewin, A. Y. & Wasserman, E. *Women in Academia*. N.Y., Praeger, 1975.

Myrdal, A. & Klein, V. *Women's Two Roles*. London, Routledge & Kegan Paul, 1956.

Oakley, P. *The Sociology of Housework*. London, Martin Robertson, 1975.

Organization for Economic Co-operation and Development. *Employment of Women: Final report of the Regional Trade Union Seminar Paris 1968*. London, H.M.S.O., November, 1970.

Rowbotham, S. *Woman's Consciousness, Man's World*. Pelican, 1973.

Rowbotham, S. *Women, Resistance and Revolution*. Pelican, 1974.

Rowbotham, S. *Hidden from History*. Pelican, 1975.

Smuts, R. A. *Women and Work in America*. N.Y., Schockin Books, 1971.

Wertheimer, B. M. & Nelson, A. H. *Trade Union Women*. N.Y., Praeger, 1975.

GEOGRAPHY

Individual subjects offered by the Department of Geography may be included in the pass BA and BSc degrees. A major concentration in Geography can be taken at present only in the BA degree although BSc candidates may include Physical Geography subjects in the Science core of their degree. Fourth year studies for the BA Honours degree are also available.

At 100-level, two one-session subjects are offered, one in Physical, the other in Human Geography. Students may choose to do either or both but entry to higher level subjects is usually dependent upon successful completion of the appropriate first level subject. At higher levels students may choose to emphasise either physical or human geography or to combine the two by selecting from the range of options available.

A student who obtains credit level passes or better in second level geography subjects may be admitted to the Honours program. Honours students are required to complete 300-level subjects in Geography to the value of 48 credit points at credit level or better, and to attend such additional tutorial/seminar classes and undertake such additional reading, writing or practical work as may be specified.

In any subject field classes may be required as a normal part of the work load. At 100-level up to two days may be required per subject; each 200-level subject may require up to 3 days for Physical and two days for Human Geography; at 300-level up to six days for Physical and three days for Human Geography subjects may be required.

In all subjects overall grades may include the assessment of essays, tutorials, seminars, periodic tests, field and practical work as well as terminal examinations. The precise weighting to be given each component will be discussed with classes early in the session.

Where possible class times will be arranged to suit full and part-time students.

100-level

GEOG 111 Introductory Physical Geography*

First session subject, 6 credit points

(2 lectures/week; 3 hrs practical/tutorial weekly; fieldwork)

This subject presents a geographical approach to major problems encountered in environmental studies. Interdependence among physical, chemical and biological processes is illustrated both by Australian and overseas examples. Particular attention is paid to man's modification of the environment.

TEXTBOOKS

Detwyler, T. & Marcus, M. *Urbanization and Environment*. Duxberry, 1927.
Dury, G. H. *Face of the Earth*. Penguin.
Rumney, G. R. *The Geosystem*. Brown, 1970.
Students should also have ready access to an up-to-date atlas.

REFERENCE BOOK

Twidale, R. *Geomorphology*. Nelson, 1968.

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* The subject, GEOG 191 Introductory Physical Geography Science (6 credit points), has been approved for offering in 1976. This subject will not count with GEOG 111 Introductory Physical Geography and students are advised to contact the Department for details.

GEOG 101 Introductory Human Geography

Second session subject, 6 credit points

(2 lectures/week; 3 hrs practical/seminar/tutorial weekly; fieldwork)

This subject focuses upon the spatial structure of modern, urban-industrial socio-economic systems and on the inter-relationships between structure and behaviour in the system. Comparative references will be made to situations in the developing world. Topics treated include socio-economic development and the evolution of population concentrations, metropolitan dominance and the spatial structuring of the metropolitan region, regional disparities in welfare and the quality of life, the internal structuring of the metropolis, population densities and social pathologies in the metropolis, urban expansion and renewal, environmental quality, migration and diffusion.

Analytical techniques relevant to the topics under discussion will be introduced in the laboratory/tutorial sessions.

PRESCRIBED TEXTBOOK

Johnston, R. J. *Spatial Structures*. Methuen, 1973.

REFERENCES

Abler, R., Adams, J. S. & Gould, P. *Spatial Organization: the Geographer's View of the World*. Prentice-Hall, 1971.
Cox, K. R. *Man, Location and Behaviour*. Wiley, 1972 (paperback).
Morrill, R. L. *The Spatial Organization of Society*. Wadsworth, 1970.
Smith, D. M. *The Geography of Social Wellbeing in the United States*. McGraw-Hill, 1970.
Toyne, P. & Newby, P. T. *Techniques in Human Geography*. MacMillan, 1972.

200-level

GEOG 201 Urban Location and Structure

First session subject, 9 credit points

(2 lectures/week; 3 hrs practical/tutorial weekly; fieldwork)

Pre-req. GEOG 101

This subject contains two interdependent segments. One is concerned with the hypotheses, theories and techniques of urban analysis which shed light on the organization, structure and functioning of urban centres; the other is designed to familiarize students with basic quantitative techniques necessary for an adequate understanding of the relevant contemporary literature. Part One contains four major study areas—intra-urban spatial patterns, intra-urban mobility, people in the urban system and systems of cities.

Part Two concentrates on descriptive measures of statistical populations, statistical relationships between variables and the generation of hypotheses from regression analysis in the urban context.

PRESCRIBED TEXTBOOKS

Berry, B. J. L. & Horton, F. E. *Geographic Perspectives on Urban Systems*. Prentice-Hall, 1970.
Bourne, L. S. *Internal Structure of The City: Readings on Space and Environment*. Oxford, 1972.

REFERENCES

Berry, B. J. L. & Marble, D. F. *Spatial Analysis: A Reader in Statistical Geography*. Prentice-Hall, 1968.
Clark, N. F. ed. *Analysis of Urban Development*. University of Melbourne, 1970.
Dixon, W. J. & Massey, F. J. *Introduction to Statistical Analysis*. McGraw-Hill, 1969.
Gregory, S. *Statistical Methods and the Geographer*. Humanities Press, 1971.
Haggett, P. *Locational Analysis in Human Geography*. Arnold, 1965.
Hauser, P. M. & Schnore, C. F. eds. *The Study of Urbanization*. John Wiley, 1965.
Johnston, R. J. *Urban Residential Patterns*. Bell, 1971.
King, L. J. *Statistical Analysis in Geography*. Prentice-Hall, 1969.
Krneckeberg, D. A. & Silvers, A. L. *Urban Planning Analysis: Methods and Models*. John Wiley, 1974.
Logan, M. I., Maher, C. A., McKay, J. & Humphreys, J. S. *Urban and Regional Australia: Analysis and Policy Issues*. Sorrett Social Science Series, 1975.
Lynch, K. *The Image of the City*. M.I.T. Press, 1960.
Yeates, M. J. *An Introduction to Quantitative Analysis in Economic Geography*. McGraw-Hill, 1968.
Yeates, M. J. & Garner, B. J. *The North American City*. Harper & Row, 1971.

GEOG 203 Population Geography

First session subject, 9 credit points

(2 lectures, 3 hrs tutorial/seminar/practical weekly)

Pre-req. Normally GEOG 101

This subject focuses on the nature, origins and consequences of spatial variability in population growth patterns, structure, distribution and density within and between societies. Particular attention is devoted to the study of fertility, mortality and the migration process. Techniques of data collection, manipulation and analysis are also considered and practical experience in handling relevant data sources will be provided.

REFERENCES

Barclay, G. W. *Techniques of Population Analysis*. Wiley, 1958.
Borrie, W. D. *Population and Australia: A Demographic Analysis and Projection*. (2 vols.) (First report of the National Population Inquiry), AGPS, 1975.
Demko, I. J., Rose, H. M. & Schnell, G. A. *Population Geography: a Reader*. McGraw-Hill, 1970.
Kosinski, L. & Prothero, R. M. *People on the Move*. Methuen, 1975.
Meadows, D. H., Meadows, D. L. et al. *The Limits to Growth*. Earth Island, 1972.
Wilson, M. G. A. *Population Geography*. NAP, 1968.*
Zelinsky, W., Kosinski, L. & Prothero, R. M. *Geography and a Crowding World*. Oxford, 1970.

GEOG 209 Asian Geography

Second session subject, 9 credit points

(2 lectures, 3 hrs tutorial/seminar/practical weekly)

Pre-req. Normally GEOG 101, GEOG 111

* Useful preliminary reading.

This subject concentrates on the physical, cultural and economic bases of internal variability in the South/South East Asian regions. Particular attention is paid to developmental problems, eg. the modernization of agriculture, illustrated by detailed regional studies.

REFERENCES

Alatas, S. H. *Modernization and Social Change: Studies in Social Change in South East Asia*. A. & R., 1972.
Brown, L. R. *Seeds of Change: The Green Revolution and Developments in the 1970's*. Praeger, 1970.
Fisher, C. A. *South East Asia*. Methuen, 1966.
Fryer, D. W. *Emerging South East Asia*. Philip, 1970.
Ginsburg, N. S. ed. *The Pattern of Asia*. Prentice-Hall.
Myint, H. *South East Asia's Economy: Development Policies in the 1970's*. Penguin, 1972.
Silcock, T. H. *The Economic Development of Thai Agriculture*. A.N.U., 1970.
Spate, O. H. K. & Learmonth, A. *India & Pakistan*. Methuen.
Spencer, J. E. *Asia East by South*. Wiley, 1971.

GEOG 211 Biogeography*

Second session subject, 9 credit points

(2 lectures, 2 hrs practical, 1 hr tutorial weekly; fieldwork)

Pre-req. GEOG 111 or Biology I

This subject follows an ecological approach to the study of vegetation communities and considers the inter-relationship between climate, soil, vegetation and fauna; systematic studies are made of plant distributions, plant requirements, processes in plant growth, and of the role of energy flow and biogeochemical cycling in the functioning of ecosystems; case studies are chosen from South Coast, New South Wales, and elsewhere of vegetation communities in relation to climate, landforms and soil.

TEXTBOOKS

Odum, E. P. *Fundamentals of Ecology*. 3rd. ed. W. B. Saunders, 1971.
Watts, D. *Principles of Biogeography*. McGraw-Hill, 1971.

REFERENCES

Billings, W. D. *Plants and the Ecosystem*. MacMillan, 1965.
Corbett, J. R. *The Living Soil*. Martindale Press, 1969.
Daubenmire, R. F. *Plants and Environment*. Wiley, 1959.
Greig-Smith, P. *Quantitative Plant Ecology*. Butterworths Scientific Publications, 1957.
Jackson, W. *Man and the Environment*. Wm. C. Brown & Co., 1971.
Kormondy, E. J. *Concepts of Ecology*. Prentice-Hall, 1969.
Lotka, A. J. *Elements of Mathematical Biology*. Dover, 1956.
Margalef, R. *Perspectives in Ecological Theory*. Univ. of Chicago, 1968.
Millar, C. E., Turk, L. M. & Foth, H. D. *Fundamentals of Soil Science*. 4th ed. Wiley International, 1965.
Oosting, H. J. *The Study of Plant Communities*. Freeman. 1956.
Russell, J. & Russell, E. W. *Soil Conditions and Plant Growth*. Longmans, 1966.
Turekian, K. K. ed. *The Late Cenozoic Glacial Ages*. Yale University Press, 1971.

* The subject, GEOG 291 Biogeography Science (6 credit points), has been approved for offering in 1976. This subject will not count with GEOG 211 Biogeography and students are advised to contact the Department for details.

300-level

GEOG 303 Advanced Population Geography

First session subject, 12 credit points

(2 lectures, 4 hrs tutorial/seminar/practical weekly)

Pre-req. Normally GEOG 201

This subject focuses on the nature, origins and consequences of spatial variability in population growth patterns, structure, distribution and density within and between societies. Particular attention is devoted to the study of fertility, mortality and the migration process. Techniques of data collection, manipulation and analysis are also considered and practical experience in handling relevant data sources will be provided.

Each member of the class will be required to devise and complete a substantial research project. Practical sessions will be of a workshop nature and devoted largely to this activity.

REFERENCES

Barclay, G. W. *Techniques of Population Analysis*. Wiley, 1958.
Borrie, W. D. *Population and Australia: A Demographic Analysis and Projection*. (2 vols.) (First report of the National Population Inquiry), AGPS, 1975.
Demko, I. J., Rose, H. M. & Schnell, G. A. *Population Geography: A Reader*. McGraw-Hill, 1970.
Kosinski, L. & Prothero, R. M. *People on the Move*. Methuen, 1975.
Meadows, D. H., Meadows, D. L. et al. *The Limits to Growth*. Earth Island, 1972.
Wilson, M. G. A. *Population Geography*. NAP, 1968.*
Zelinsky, W., Kosinski, L. & Prothero, R. M. *Geography and a Crowding World*. Oxford, 1970.

GEOG 307 Agricultural Geography

First session subject, 12 credit points

(2 lectures, 4 hrs tutorial/seminar/practical weekly)

Prereq. Normally GEOG 201

This subject considers the bases, origins, dispersal, and patterning of agriculture; models of agricultural location; agricultural structure and typology; measurements of agricultural attributes (eg. intensity, productivity, concentration and diversification); regional comparisons in farm structure; agricultural change processes, eg. the diffusion of innovation.

REFERENCES

Barlowe, R. *Land Resource Economics*. Prentice-Hall, 1971.
Boserup, E. *The Conditions of Agricultural Growth*. Allen & Unwin, 1970.
Bunting, A. H. ed. *Change in Agriculture*. Duckworth, 1970.
Found, W. C. *A Theoretical Approach to Rural Land Use Patterns*. Arnold, 1971.
Grigg, D. *The Harsh Lands*. MacMillan, 1970.
Southworth, H. M. & Johnston, B. F. *Agricultural Development and Economic Growth*. Cornell, 1967.
Tarrant, J. R. *Agricultural Geography*. David & Charles.
Wharton, C. R. ed. *Subsistence Agriculture and Economic Development*. Cass, 1969.
Williams, D. B. *Agriculture in the Australian Economy*. Sydney U.P., 1967.

* Useful preliminary reading.

GEOG 313 Coastal Geomorphology*

First session subject, 12 credit points

(2 lectures, 4 hrs practical/seminar/tutorial weekly; fieldwork)

Pre-req. GEOG 211 or 6 credit points of 200-level Geology

This subject considers contemporary processes affecting the geomorphology of sandy beaches and coastal lagoons. Topic covered include: nearshore morphology, wave and water circulation patterns; nearshore zone sediment transport; interactions among waves, water table and beach front geomorphology; eolian processes and coastal dune morphology; and estuarine geomorphology.

Particular attention will be given to field measurement techniques, and the application of all principles considered to beaches of Central and South Coast, N.S.W.

TEXTBOOK

Bascom, W. *Waves and Beaches: the Dynamics of the Ocean Surface.* Anchor Doubleday Paperbacks, 1964.

REFERENCES

Ingle, J. C. Jnr. *The Movement of Beach Sand.* "Developments in Sedimentology No. 5", Elsevier, 1966.
King, C. A. M. *Beaches and Coasts.* 2nd ed. Edward Arnold, 1972.
Lauff, G. H. ed. *Estuaries.* American Association for the Advancement of Science, 1967.
Meyer, R. E. ed. *Waves on Beaches and Resulting Sediment Transport.* Academic Press, 1972.
Schwartz, M. L. ed. *Spits and Bars.* "Benchmark Papers in Geology", Dowden, Hutchinson & Ross, 1972.
Silvester, R. *Coastal Engineering I and II.* "Developments in Geotechnical Engineering" Vols 4A and 4B, Elsevier, 1973.
U.S. Army Coastal Engineering Research Center. *Shore Protection, Planning and Design.* "Technical Report No. 4", 3rd ed., U.S. Govt. Printing Office, 1966.
Zenkovich, V. P. *Processes of Coastal Development.* ed. by J. A. Steers, Oliver & Boyd, 1967.

GEOG 301 Geography of Transport Systems

Second session subject, 12 credit points

(2 lectures, 4 hrs practical/seminar/tutorial weekly; fieldwork)

Pre-req. GEOG 201 or 200-level Economics

This subject considers the significance of transport systems in structuring spatial patterns. It consists of two interdependent sections, one devoted to the development of a conceptual framework and substantive discussion of transport systems and the other concerned with statistical techniques and methodology.

Section A examines system concepts, analysis and structure for selected modal systems at various scales—for example, intra-urban transit systems, inter-urban road, rail systems and international air and maritime systems.

Section B deals with techniques for network analysis, optimizing flows in networks and regression analysis.

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* The subject, GEOG 393 Coastal Geomorphology Science (12 credit points), has been approved for offering in 1976. This subject will not count with GEOG 313 Coastal Geomorphology and students are advised to contact the Department for details.

TEXTBOOKS

Eliot-Hurst, M. E. *Transportation Geography: Comments & Readings.* McGraw-Hill, 1974.
Taaffe, E. J. & Gauthier, H. L. *Geography of Transportation.* Prentice-Hall, 1973.

REFERENCES

Highly Recommended

Bird, J. *Seaports and Seaport Terminals.* Hutchinson, 1971.
Blunden, W. R. *The Landuse Transport System. Analysis and Synthesis.* Pergamon, 1971.
Couper, A. D. *The Geography of Sea Transport.* Hutchinson, 1972.

Others

Haggett, P. & Chorley, R. J. *Network Analysis in Geography.* Arnold, 1969.
Hay, A. *Transport for the Space Economy: A Geographical Study.* MacMillan, 1973.
Hutchinson, B. *Principles of Urban Transportation Planning.* McGraw-Hill, 1974.
Meyer, J. R., Kain, J. F. & Wohl, M. *The Urban Transportation Problem.* Harvard, 1969.
Proceedings of the First International Conference on Transportation Research. Bruges, 1974.

GEOG 311 Fluvial Geomorphology*

Second session subject, 12 credit points

(3 lectures, 3 hrs practical/seminar/tutorial weekly; fieldwork)

Pre-req. GEOG 211 or 6 credit points of 200-level Economics.

This subject consists of processes in the evolution of hillslopes, stream channels and valley forms, lithological, structural and temporal controls in landscape development, and the application of these principles to morphogenetic landscape studies, with special reference to Australian examples.

TEXTBOOKS

Morisawa, M. *Streams, their Dynamics & Morphology.* McGraw-Hill, 1968.
Twidale, C. R. *Structural Geomorphology.* A.N.U., 1971.

REFERENCES

Highly Recommended

Derbyshire, E. ed. *Climatic Geomorphology.* MacMillan, 1972.
Pitty, A. F. *Introduction to Geomorphology.* Methuen, 1971.

Others

Chorley, R., Dunn, A. & Beckinsale, R. *The History of the Study of Landforms.* Vol. 1, Methuen, 1964.
Davis, W. M. *Geographical Essays.* Dover, 1954.
Hettner, A. *Die Oberflachenformen Des Festlandes* (trans. P. Tilley). MacMillan, 1973.
Jennings, J. N. & Mabbutt, J. A. *Landform Studies from Australia and New Guinea.* A.N.U., 1972.
Leopold, L. B., Wolman, M. G. & Miller, J. P. *Fluvial Processes in Geomorphology.* Freeman, 1964.
Thornbury, W. D. *Principles of Geomorphology.* Wiley, 1954.

* The subject, GEOG 391 Fluvial Geomorphology Science (12 credit points), has been approved for offering in 1976. This subject will not count with GEOG 311 Fluvial Geomorphology and students are advised to contact the Department for details.

GEOG 305 Regional Planning and Development

Second session subject, 12 credit points

(2 lectures, 4 hrs practical/seminar/tutorial weekly)

Pre-req. GEOG 201

This subject focuses on the geographer's increasing involvement with questions of regional disparities in developed and developing countries. The first section considers the characteristics of lagging regions within the context of the evolution of space economies, and pays particular attention to diffusion and agglomeration processes, the shrinkage of space, migration patterns and the role of the urban system in development. In the second section questions of planning strategy for disadvantaged regions are reviewed, special emphasis being placed on growth-centre approaches to development.

TEXTBOOK

Friedmann, J. & Alonso, W. eds. *Regional Development and Planning.* M.I.T. Press, 1964.

REFERENCES

Chadwick, G. *A System View of Planning.* Pergamon, 1971.
Hansen, N. M. ed. *Growth Centers in Regional Economic Development.* Free Press, 1972.
Hansen, N. M. *Intermediate-Size Cities as Growth Centers.* Praeger, 1971.
Morrill, R. L. & Wohlenberg, E. H. *The Geography of Poverty in the U.S.* McGraw-Hill, 1971 (paperback).
McLoughlin, J. B. *Urban and Regional Planning: a Systems Approach.* Faber & Faber, 1969.
Stöhr, W. B. *Interurban Systems and Regional Economic Development.* Commission on College Geography, Association of American Geographers, 1974.

GEOG 309 Advanced Asian Geography

Second session subject, 12 credit points

(2 lectures, 4 hrs tutorial/seminar/practical weekly)

Pre-req. Normally GEOG 101, GEOG 111

This subject concentrates on the physical, cultural and economic bases of internal variability in the South/South East Asian regions. Particular attention is paid to developmental problems, eg. the modernization of agriculture, illustrated by detailed regional studies.

REFERENCES

Alatas, S. H. *Modernization and Social Change: Studies in Social Change in South East Asia.* A. & R., 1972.
Brown, L. R. *Seeds of Change: The Green Revolution and Developments in the 1970's.* Praeger, 1970.
Fisher, C. A. *South East Asia.* Methuen, 1966.
Fryer, D. W. *Emerging South East Asia.* Philip, 1970.
Ginsburg, N. S. ed. *The Pattern of Asia.* Prentice-Hall.
Myint, H. *South East Asia's Economy: Development Policies in the 1970's.* Penguin, 1972.
Silcock, T. H. *The Economic Development of Thai Agriculture.* A.N.U., 1970.
Spate, O. H. K. & Learmonth, A. *India & Pakistan.* Methuen.
Spencer, J. E. *Asia East by South.* Wiley, 1971.

400-level

GEOG 402 Geography IV Honours

Double session subject, 48 credit points

Pre-req. Permission of Senate or advice of Department.

Final year Honours students are required to write a thesis of approximately 20-25,000 words on an approved topic embodying the results of a piece of supervised research and to participate in a seminar program.

In first session the seminar program is concerned with questions of methodological and philosophical significance to research and teaching in modern Geography. In addition candidates will be involved in a directed reading/seminar course which explores a particular research field and culminates in the preparation of a research proposal. The second session is devoted mainly to research but participation in a workshop seminar is also required.

Assessment is based upon the thesis which will be externally and internally examined.

REFERENCES

Provided in class.

GEOLOGY

The Geology subjects leading to the pass degree consist of two 100-level subjects (Geology 101 and 102), four 200-level subjects, and four 300-level subjects, together with eight subjects which can be taken at either 200- or 300-level. The subjects which can be taken at 200- or 300-level will only be considered as 300-level subjects if four 200-level subjects in Geology have previously been satisfactorily completed. There is therefore flexibility in the selection of subjects taken in second year. Students should however note the importance of the subject Geology 201 as a pre-requisite for many of the other subjects. For entry to the Geology IV Honours course students must satisfy requirements for the award of the degree of BSc in the Faculty of Science *and* have satisfactorily completed at least four 200-level and normally eight 300-level Geology subjects including: Geology 201, 202, 203, 204, 205/305, 206/306, 207/307 and 208/308.

In the transition period it will be necessary to grant part credit, on the recommendation of the Departmental Chairman of Geology, to students taking subjects where part of the content was included in units taken up to and including 1974.

100-level

Geology 101 and 102 form the basic 100-level subjects and are the pre-requisites for all 200- and 300-level subjects in Geology. The subjects Geology 111 and 112 (Geology, Resources and the Environment I and II) are intended to be non-professional and will not normally be considered sufficient pre-requisites for the Geology II Science program.

GEOL 101 Geology 101

Introductory Geology, Crystallography, Mineralogy, Petrology

First session subject, 6 credit points

(3 hrs lectures and 3 hrs practical per week)

No pre- or co-requisites. Excludes Geology 111

Geology as a science, geological time, the earth in space, shape of the earth, astrogeology. Earthquakes and earth structure, orogenesis and epeirogenesis, and volcanoes. The geological cycle.

Crystallography: Crystal symmetry, crystal forms, crystal systems, stereographic projection, twinning.

Mineralogy: Occurrence, form and physical properties of minerals. Mineral classification of silicates. Descriptive mineralogy of the rock-forming minerals (essentially the silicates).

Petrology: Field occurrence, lithological characters, classification and structural relationships of igneous, sedimentary and metamorphic rocks. *Economic Geology:* Descriptive mineralogy of minerals of economic importance. Occurrence of ore deposits, coal and petroleum geology.

Practical Work: Study of crystal models in clinographic and stereographic projection. Identification and description of common minerals and rocks in hand-specimen. At least one field tutorial.

TEXTBOOKS

Read, H. H. & Watson, J. *Introduction to Geology*. 2nd ed. Macmillan, 1968.
or
Gilluly, J., Waters, A. C. & Woodford, A. O. *Principles of Geology*. 3rd ed. Freeman, 1968.
Wollongong Sheet Geological Map. 1:250,000. Mines Dept., N.S.W.

REFERENCE BOOKS

Ernst, W. G. *Earth Materials*. Foundations of Earth Science Series. Prentice-Hall, 1969.
Mason, B. & Berry, L. G. *Elements of Mineralogy*. Freeman, 1968.*
or
Hurlbut, C. S., Jr. *Dana's Manual of Mineralogy*. 18th ed. John Wiley, 1971.
Phillips, F. C. *An Introduction to Crystallography*. 4th ed. Longmans, 1971.*
Skinner, B. J. *Earth Resources*. Foundations of Earth Science Series. Prentice-Hall, 1969.
Verhoogen, J. *et al. The Earth—An Introduction to Physical Geology*. Holt, Rinehart & Winston, 1970.*

GEOL 102 Geology 102

Physical Geology, Palaeontology and Stratigraphy, Mapping

Second session subject, 6 credit points

(3 hrs lectures and 3 hrs practical per week)

No pre- or co-requisites. Excludes Geology 112

Physical Geology: The main surface features of the earth. Surface and subsurface water. Weathering and the geological cycle. Lakes, rivers, glacial phenomena. Introductory physiography, including arid land and coastal processes. Folding and faulting in the crust.

Stratigraphy and Palaeontology: Basic principles of stratigraphy. Introductory palaeontology, especially the morphology of the main invertebrate animal and plant phyla. The geological history of the Australian continent and more specifically, that of the Sydney Basin and New South Wales.

Practical Work: Recognition and description of examples of important fossil groups and their use in stratigraphy. Interpretation and preparation of geological maps and cross-sections. Map reading and the use of simple geological instruments. At least one field tutorial.

TEXTBOOKS

Read, H. H. & Watson, J. *Introduction to Geology*. 2nd ed. Macmillan, 1968.
or
Gilluly, J., Waters, A. C. & Woodford, A. O. *Principles of Geology*. 3rd ed. Freeman, 1968.
Wollongong Sheet Geological Map 1:250,000. Mines Department, New South Wales.
A Mapping handbook prepared by the Department of Geology.

REFERENCE BOOKS

Black, R. M. *Elements of Palaeontology*. C.U.P., 1970.*
Brown, D. A., Campbell, K. S. W. & Crook, K. A. W. *The Geological Evolution of Australia and New Zealand*. Pergamon, 1968.*

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* The purchase of these books is suggested for students who intend to proceed to later units in Geology.

Longwell, G. R., Flint, R. F. & Sanders, J. *Physical Geology*. John Wiley, 1969. Student edition.
Tarling, D. H. & Tarling, M. P. *Continental Drift—A study of the Earth's Moving Surface*. Penguin, 1972.
Twidale, C. R. *Geomorphology*. 2nd ed. Nelson, 1973.
Verhoogen, J. *et al. The Earth—An Introduction to Physical Geology*. Holt, Rinehart & Winston, 1970.*

GEOL 111 Geology 111

Geology, Resources and the Environment I

First session subject, 6 credit points

(2½ hrs lecture, ½ hr seminar and 1 hr tutorial/practical per week (on average))

No pre- or co-requisites. Excludes Geology 101

The Earth in space and its origin. The life cycle of the Earth's crust—its structure and structural evolution. Geological time and its measurement. Geology of the Earth's resources. Constitution of the Earth's crust. Igneous, sedimentary and metamorphic rocks and their origins. The nature and size of orebodies, discussing mines, mining and extractive industries activities, and problems of waste treatment, rehabilitation, etc. Mineral fuels, both fossil and radioactive, and their reserves. Geothermal and other alternative energy sources. Groundwater.

Practical Work: Will illustrate the lecture material. Two days of field tutorials will be conducted.

TEXTBOOKS

Ernst, W. G. *Earth Materials*. Foundations of Earth Science Series. Prentice-Hall, 1969.
Skinner, B. J. *Earth Resources*. Foundations of Earth Science Series. Prentice-Hall, 1968.

REFERENCE BOOKS

Menard, F. *Geology, Resources, and Society*. W. H. Freeman.

A list of other relevant books will be distributed at the start of the course.

GEOL 112 Geology 112

Geology, Resources and the Environment II

Second session subject, 6 credit points

(2½ hrs lectures, ½ hr seminar, and 1 hr tutorial/practical per week (on average))

No pre- or co-requisites. Excludes Geology 102

Surface processes, structure and scenery. Volcanism. Slope stability and the uses of Engineering Geology. Effects of construction activities on surface processes. Life and its origin and evolution on Earth. The development of vertebrates, including hominids. Palaeoecology. The preparation

* The purchase of these books is suggested for students who intend to proceed to later units in Geology.

and interpretation of geological maps. The interaction of geological constraints upon the requirements of Society.

Practical Work: Will illustrate the lecture material. Two days of field tutorials will be conducted.

TEXTBOOK

McAlester, A. L. *The History of Life*. Foundations of Earth Science Series. Prentice-Hall, 1968.

REFERENCE BOOKS

Menard, F. *Geology, Resources, and Society*. W. H. Freeman.
Tarling, D. H. & Tarling, M. P. *Continental Drift*. Penguin (Pelican Paperback), 1972.
Twidale, C. R. *Geomorphology*. 2nd ed. Nelson Australas. Paperbacks, 1973.

A list of other relevant books will be distributed at the start of the course.

200-level

Note: Geology 201 is a pre-requisite for eight of the more advanced courses in Geology.

GEOL 201 Geology 201

Crystallography, Crystal Chemistry and Mineralogy

First session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 101, 102

Crystallography: Stereographic projection, Wulff net. Crystal classes and point groups. Bravais lattices. Zones, zone law. Internal symmetry, space groups. Use of spherical triangles. Napierian triangles.

Optical Crystallography: Properties of waves, refraction in isotropic and anisotropic media. Refractive indices. Uniaxial and biaxial indicatrices and crystals. Use of the petrological microscope. Interference colours and extinction. Biot-Fresnel construction, uniaxial and biaxial interference figures.

Crystal Chemistry: Chemical composition and unit cell content. Components and phases. The bonding of atoms, the effect of ionic radius on structure. Isomorphism, atomic substitution and solid solution. Polymorphism. Pseudomorphism. Non-crystalline minerals. Classification of minerals.

Silicate Minerals: The application of the principles of crystal chemistry to, and a study of, the physical and chemical properties of the silicate minerals.

Practical: A laboratory study of the optical properties of minerals using the petrological microscope. A study of minerals in hand-specimen and thin-section.

TEXTBOOKS

Deer, W. A., Howie, F. A. & Zussman, J. *An Introduction to the Rock-forming Minerals*. Longmans, 1966.
Kerr, P. F. *Optical Mineralogy*. 3rd ed. McGraw-Hill, 1959.

Mason, B. & Berry, L. *Elements of Mineralogy*. Freeman, 1968.
Phillips, F. C. *An Introduction to Crystallography*. 4th ed. Longmans, 1971.

REFERENCE BOOKS

Bloss, F. D. *An Introduction to the Methods of Optical Crystallography*. Holt, Rinehart & Winston, 1961.
Bloss, F. D. *Crystallography and Crystal Chemistry*. Holt, Rinehart & Winston, 1971.
Phillips, W. R. *Mineral Optics*. Freeman, 1971.
Wahlstrom, E. E. *Optical Crystallography*. 4th ed. Wiley, 1968.

GEOL 202 Geology 202

Igneous and Metamorphic Petrology

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 201

Igneous: Classification of rocks. Characteristics and classification of igneous rocks. Petrochemical calculations. Variations in associated igneous rocks. The consolidation of magma and a study of some synthetic silicate systems. Reaction series in igneous rocks. Some igneous rock associations.

Metamorphic: Characteristics and classification of metamorphic rocks. Definition and types of metamorphism. Factors of metamorphism, the concept of metamorphic facies. Graphical representation of metamorphic mineral paragenesis. Hornfels facies of contact metamorphism. Regional metamorphism. Facies series. Change of chemical composition of minerals with progressive metamorphism. Burial metamorphism.

Practical: Study of rocks in hand-specimen and thin-section.

TEXTBOOK

Williams, H., Turner, F. J. & Gilbert, C. M. *Petrography*. Freeman, 1955.

REFERENCE BOOKS

Bayly, B. B. *Introduction to Petrology*. Prentice-Hall, 1968.
Hatch, F. H., Wells, M. K. *Petrology of the Igneous Rocks*. 13th ed. Murby, 1961.
Turner, F. J. & Verhoogen, J. *Igneous and Metamorphic Petrology*. 2nd ed. McGraw-Hill, 1960.

GEOL 203 Geology 203

Principles of Geological Mapping

Second session subject, 6 credit points

(1 hr lectures, 1½ hrs practical per week and up to a total of 10 days of field work)

Pre-req. Geology 101, 102

Course Description: Introductory lecture and practical course-work. Field mapping tutorial, held during a vacation. Students will map in detail the geology of a selected area. Map compilation and progress reports on each day's work with final interpretation of results in the laboratory tutorials after completion of the field tutorial.

REFERENCE BOOKS

Kottlowski, F. E. *Measuring Stratigraphic Sections.* Holt, Rinehart & Winston, 1965.
Ragan, D. *Structural Geology—An Introduction to Geometrical Techniques.* 2nd ed. Wiley, 1973. (Recommended for students proceeding to Geology 303).

GEOL 204 Geology 204

Palaeontology

First session subject, 6 credit points

(3 hrs lectures and 3 hrs practical per week)

Pre-req. Geology 101, 102

Palaeontology: Taxonomy, evolution, species concepts. Systematic treatment of the more important invertebrates—morphology, classification, phylogeny, ecology, geological distribution. Theoretical aspects of palaeontology. Vertebrate palaeontology. Palaeobotany. Study of demonstrations to illustrate the lecture course.

TEXTBOOKS

Black, R. M. *Elements of Palaeontology.* C.U.P., 1970.
Middlemiss, F. A. *A Guide to Invertebrate Fossils.* Hutchinson, 1968. (Only recommended for students not proceeding to further geology courses.)
Raup, D. A. & Stanley, S. M. *Principles of Palaeontology.* Freeman, 1971.

REFERENCE BOOKS

Delvoryas, T. *Morphology and evolution of fossil plants.* Holt, Rinehart & Winston, 1963.
Moore, R. C. ed. *Treatise on Invertebrate Palaeontology.* Geol. Soc. Amer.
Romer, A. S. *Vertebrate Palaeontology.* 3rd ed. University of Chicago Press, 1966.
Scagel, R. F., Bandoni, R. J., Reuse, G. E., Schofield, W. B., Stein, J. R. & Taylor, T. M. C. *An Evolutionary Survey of the Plant Kingdom.* Wadsworth, 1965.

GEOL 214 Geology for Engineers I

First session subject, 4 credit points

Pre-req. 1 year of a prescribed Bachelor of Engineering degree course

The Earth and its place in space, its origin and structure. The geological cycle and geological processes, geological time-scale. Introductory aspects of crystallography. Mineralogy, including clay mineralogy and sulphide mineralogy. Petrology—classification of igneous, sedimentary and metamorphic rocks (including their formation). Weathering and erosion, including mass movements (down slope movements). Igneous activity. Faulting, folding and jointing. Aspects of geomorphology. Stratigraphy and methods of correlation. Mapping techniques. Remote sensing techniques — aerial photography and geophysical exploration techniques, including magnetic, gravity, seismic and electrical procedures. Introduction to geology report writing and reading. The role of geological studies in engineering.

Practical work will include introductory mineralogy, petrology (including weathered rocks) and introductory mapping. Field work (two days) will be a necessary part of the practical work. Satisfactory reports of the practical work must be completed.

TEXTBOOKS

Blyth, F. G. H. *Geology for Engineers*. 5th ed. Arnold, 1967.

or

Krynine, D. P. & Judd, W. R. *Principles of Engineering, Geology and Geotechnics*. A Mapping Handbook (W.U.C. Geology Department). McGraw-Hill, 1957.

or

Glasson, K. R. & McDonnell, K. S. *Graded Exercises in Geological Mapping*. Cheshire, Melbourne.

REFERENCE BOOKS

Gass, I. G., Smith, P. J. & Wilson, R. C. *Understanding the Earth. A reader in the Earth Sciences*. 2nd ed. Open Univ. Press (Artemis), 1973.

Gordon, R. B. *Physics of the Earth*. Holt, Rinehart & Winston, 1972.

Griffiths, D. H. & King, R. F. *Applied Geophysics for Engineers and Geologists*. Pergamon, 1965.

200- or 300-level

Courses available at 200-level or, if Geology 101 and 102 and four 200-level geology subjects have already been successfully completed, at 300-level.

GEOL 605 Geology 205 or 305

Sedimentology

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 201

Description: Sediment particle size and measures of central tendency, sorting, skewness and kurtosis. Particle shape and surface texture. Mass and vectorial properties of sediment, grain fabric. Clastic and chemical sedimentary minerals. Heavy minerals and clay minerals. Textures of clastic and carbonate rocks. Diagenesis. Pourbaix diagrams. Classification of sedimentary rocks. Sedimentary provenance, processes and facies.

Practical: Study of sedimentary rocks in hand-specimen and thin-section. Heavy mineral and provenance studies. Size and shape analysis.

TEXTBOOKS

Blatt, H., Middleton, G. & Murray, R. *Origin of Sedimentary Rocks*. Prentice-Hall, 1972.

Folk, R. L. *Petrology of Sedimentary Rocks*. Hemphill's, 1974.

Kerr, P. F. *Optical Mineralogy*. 3rd ed. McGraw-Hill, 1959.

Williams, H., Turner, F. J. & Gilbert, C. M. *Petrography*. Freeman, 1958.

REFERENCE BOOKS

Krumbein, W. C. & Sloss, L. L. *Stratigraphy and Sedimentation*. 2nd ed. Freeman, 1963.

Milner, H. B. *Sedimentary Petrography*. 3rd ed. Murby, London, 1940.

Pettijohn, F. J. *Sedimentary Rocks*. 2nd ed. Harper, N.Y., 1957.

GEOL 606 Geology 206 or 306

Stratigraphy and Stratigraphic Palaeontology

First session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 101, 102. Co-req. Geology 204

Description: Rock, time and time-rock unit concepts. Correlation methods and problems in the Pre-Cambrian and the Phanerozoic. A systematic treatment of the geological column discussing type successions together with other important overseas successions and those of representative Australian regions. The history of the Tasman, Caledonian, Alpine and other geosynclines.

Practical: Demonstrations of suites of rocks and fossils from important successions.

TEXTBOOK

Brown, D. A., Campbell, K. S. W. & Crook, K. A. W. *The Geological Evolution of Australia and New Zealand*. Pergamon, 1968.

REFERENCE BOOKS

Arkell, W. J. *The Jurassic System in Great Britain*. Oxford, 1933.
Arkell, W. J. *The Jurassic System in the World*. Oliver & Boyd, 1956.
Kummel, B. H. *History of the Earth*. 2nd ed. Freeman, 1970.
Packham, G. H. ed. *The Geology of N.S.W*. Jour. Geol. Soc. Australia. Vol. 16, Part 1, 1969, pp. 1-645.
Rankama, K. ed. *The Pre-Cambrian*. Vols. 1 & 2. Interscience, 1963 and 1965.
Rayner, D. H. *The Geology of the British Isles*. Cambridge, 1957.

GEOL 607 Geology 207 or 307

Geophysics

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 101, 102

Geophysics: Geodesy—study of the shape of the earth, and its gravitational field. Seismology—study of natural (and artificial) earthquake phenomena, and their relation to the structure of the earth and its properties. The earth's near-atmosphere. Geomagnetism and palaeomagnetism. The earth's magnetic field, its characteristics and variations; the history of the geomagnetic field, especially as recorded in rocks and similar material. The sun, planets, moon, meteorites and their relationships. Geochronology—methods of radiometric dating and correlation. Geothermy—thermal properties of the earth, heat flow.

TEXTBOOKS

Bullen, K. E. *An Introduction to the Theory of Seismology*. 3rd ed. C.U.P., 1963.
Garland, G. D. *The Earth's Shape and Gravity*. Pergamon, London, 1965.
Strangway, D. W. *The History of the Earth's Magnetic Field*. McGraw-Hill, 1970.
or
Tarling, D. H. *Principles and Applications of Palaeomagnetism*. Chapman & Hall, 1971.
Wyllie, P. J. *The Dynamic Earth: A Textbook in Geosciences*. Wiley, 1971.

REFERENCE BOOKS

Bates, D. R. ed. *The Planet Earth*. 2nd ed. Pergamon, London, 1964.
Howell, B. J. *Introduction to Geophysics*. McGraw-Hill, N.Y., 1959.
Le Pichon, X., *et al. Plate Tectonics*. Elsevier, 1973.
McElhinny, M. W. *Palaeomagnetism and Plate Tectonics*. C.U.P., 1973.
Richter, C. E. *Elementary Seismology*. Freeman, 1958.
Runcorn, S. K. *Palaeogeophysics*. Academic Press, 1970.

Exploration Geophysics: Introduction to the theory of the various techniques of Exploration Geophysics, especially with respect to Australia. Seismic methods, reflection and refraction. Potential methods (gravity and magnetic). Electrical and electromagnetic methods—using natural and artificial electrical and electromagnetic fields. Radiometric techniques. Methods of down-hole logging and correlation.

Practical: Calculations of real and imaginary problems based on the theory and interpretation outlined in lectures for various techniques. Study of Australian case histories, in particular, will be made. Field work will be undertaken, depending on the availability of instrumentation.

TEXTBOOKS

Debrin, M. B. *Introduction to Geophysical Prospecting*. 2nd ed. McGraw-Hill, 1960.
or
Parasnis, D. S. *Mining Geophysics*. 2nd ed. Elsevier, 1973.
Griffiths, D. H. & King, R. F. *Applied Geophysics for Engineers and Geologists*. Pergamon, London, 1965.

REFERENCE BOOKS

Grant, F. S. & West, G. F. *Interpretation Theory in Applied Geophysics*. McGraw-Hill, 1965.
Heiland, C. A. *Geophysical Exploration*. Prentice-Hall, Hafner Reprint, 1967.

GEOL 608 Geology 208 or 308

Structural Geology and Geotectonics

First session subject, 6 credit points
(2 hrs lectures and 4 hrs practical per week)
Pre-req. Geology 201

Description: Non-diastrophic and diastrophic deformation of rocks. Structures, internal and external, associated with igneous rocks. Introduction to structural analysis. Large-scale deformations such as alpine tectonics, and the structure and structural evolution of the European Alps and the Himalayas. Other examples of mountain-building, and geosynclines. Mid-oceanic ridges and associated features. Plate tectonics. Structural analysis, and study of folding, including superposed folding. Geometrical, kinematic and dynamic analysis of folded rocks. Stress and strain and its analysis, including determination of the strain ellipsoid. Cleavage and fracture, joint and fault development.

Practical: Problems using the stereographic projection with maps. Stereographic projection problems. Block diagrams. Stress and strain analysis. Study of deformed rocks in hand-specimen and thin-section. Map problems.

TEXTBOOKS

Billings, M. P. *Structural Geology*. 3rd ed. Prentice-Hall, 1972.
or
Hills, E. S. *Elements of Structural Geology*. 2nd ed. Chapman & Hall. Science Paperbacks, 1972.
Phillips, F. C. *The Use of Stereographic Projection in Structural Geology*. 2nd ed. Arnold, London, 1969.

REFERENCE BOOKS

DeSitter, L. U. *Structural Geology*. McGraw-Hill, N.Y., 1956.
Jaeger, J. C. *Elasticity, Fracture and Flow*. 3rd ed. Methuen, 1969. (Science Paperbacks).
Price, N. J. *Fault and Joint Development in Brittle and Semi-Brittle Rock*. Pergamon, 1966.
Ramsay, J. G. *Folding and Fracturing of Rocks*. McGraw-Hill, 1967.
Turner, F. C. & Weiss, L. E. *Structural Analysis of Metamorphic Tectonites*. McGraw-Hill, 1963.

GEOL 610 Geology 210 or 310

Micropalaeontology

Second session subject, 6 credit points

(1 hr lecture, 1 hr tutorial and 4 hrs practical per week)

Pre-req. Geology 101, 102

Description: Methods of preparation for microscopic study of microfossil concentrates from sediment samples; study of general attributes of these concentrates. Studies of Taxonomy, ecology and evolution of the important microfaunal groups (Foraminiferida, Radiolaria, Ostracoda, Conodonta) and the important microfloral groups (spores, pollens, diatoms, coccoliths, chitinezoans).

REFERENCE BOOKS

Glaessner, M. F. *Principles of Micropalaeontology*. Hafner Publishing Co., New York, 1967.
Jones, D. J. *Introduction to Microfossils*. Harper & Brothers, 1956.

GEOL 611 Geology 211 or 311

Basin Analysis and Oceanography

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 101, 102

Description: The erosion, transport and deposition of granular solids by fluid media. Flow regimes and their characteristic bed forms. Effects of transport on size distribution. Turbidity currents. Slumping. Reference axes and symmetry concepts. Bedding types and structures. Deformational structures of sedimentary origin. Vectorial properties of sediments, sediment fabrics. Thickness and related maps. The reconstruction of palaeo-environments from sediment properties. The stratigraphy of a number of important Australian and overseas sedimentary basins. Water movements, waves and currents. Physical and chemical properties of sea water. Sediments of the ocean basins. The nature and structure of the ocean floor. Biological oceanography.

Practical: Examination of textures, fabrics and structures of sedimentary rocks in the laboratory. Demonstrations of specimens and maps from some basins covered in lectures. Field examination of sediments (Recent and Permian) in the Illawarra District. Experiments with erosion, transport and deposition of sands by water.

TEXTBOOKS

Allen, J. R. L. *Physical Processes of Sedimentation*. Unwin, 1970.
Brown, D. A., Campbell, K. S. W. & Crook, K. A. W. *The Geological Evolution of Australia and New Zealand*. Pergamon, 1968.
Turekian, K. K. *Oceans*. Prentice-Hall, 1968.

REFERENCE BOOKS

Hill, M. N. ed. *The Sea*. 5 vols. Interscience.
Menard, H. W. *Marine Geology of the Pacific*. McGraw-Hill, 1964.
Middleton, C. V. ed. *Primary Sedimentary Structures and their Hydrodynamic Interpretation*. S.E.P.M., 1965.
Pettijohn, F. J. & Potter, P. E. *Atlas and Glossary of Primary Sedimentary Structures*. Springer, 1964.
Potter, P. E. & Pettijohn, F. J. *Paleocurrents and Basin Analysis*. Springer, 1963.

GEOL 612 Geology 212 or 312

Fossil and Nuclear Fuels

First session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 101, 102

Coal: Formation of peat and coals. Peat-anthracite series. Rank and type concepts. Macerals and microlithotypes. Chemical analysis and technological tests of coals. Minerals in coals. Microscopy of coal products such as cokes and carbons. Geology of coal-bearing sequences.

Practical: Examination of macerals in transmitted and reflected light. Use of immersion to adjust contrast, maceral analyses in reflected light. Measurement of reflectance and of refractive indices using polished sections.

REFERENCE BOOKS

Francis, W. *Coal*. 2nd ed. Arnold, 1961.
International Committee for Coal Petrology. *Glossary of Terms*. 1963. Supplement, 1971.
Murchison, D. G. & Westoll, T. S. eds. *Coal and Coal Bearing Strata*. Oliver & Boyd, 1968.
Raistrick, A. & Marshall, C. E. *The Nature and Origin of Coal Seams*. E.U.P., London, 1939. (Out of print).
Van Krevelen, D. W. *Coal, Typology, Chemistry, Physics*. Elsevier, 1961.

Petroleum: History of the use of, and search for, petroleum. The distribution of petroleum in time and space. The generation, migration and accumulation of petroleum, including reservoir rock properties and trap characteristics. Methods of search for and exploitation of, including evaluation of, petroleum deposits. Gas, oil and petroleum solids. Australian occurrences will be described.

Nuclear Fuels: Description of the mineralogy and geology of important nuclear fuel deposits, and related mineral deposits. The methods of searching for such deposits.

Practical: Study of data on Australian petroleum deposits. Description of rotary drill cuttings samples.

TEXTBOOKS AND REFERENCE BOOKS

Lalicker, C. G. *Principles of Petroleum Geology*. Appleton-Century-Crofts, N.Y., 1949.

or

Leversen, A. I. *Geology of Petroleum*. 2nd ed. Freeman, 1967.

or

Russell, W. L. *Principles of Petroleum Geology*. McGraw-Hill, 1960.

(The reference book for Nuclear Fuels is yet to be selected.)

GEOL 613 Geology 213 or 313

Economic Geology and Exploration Geochemistry

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 201

Description: Outline of the scope of economic geology and of the processes of concentration of economically important minerals. Introduction to some classifications of ore deposits. Description, with examples, of the major types of ore deposits—those contained in igneous rocks, those associated with igneous rocks. Sedimentary ore deposits. Effects of metamorphism in forming new ore deposits, and modifying existing ore deposits. Metallogenic analysis—the distribution of ores in space and time. Appraisal techniques. Australian ore deposits. Geochemical prospecting.

Practical: An introductory course in ore microscopy. The mineragraphy of some important Australian orebodies.

TEXTBOOKS

Edwards, A. B. *Textures of the Ore Minerals and Their Significance*. 2nd ed. Australas. Inst. Min. Metall., Melbourne, 1960.

Stanton, R. L. *Ore Petrology*. McGraw-Hill, 1972.

REFERENCE BOOKS

Barnes, H. L. *Geochemistry of Hydrothermal Ore Deposits*. Holt, Rinehart & Winston, 1967.

Bateman, A. M. *Economic Mineral Deposits*. 2nd ed. Wiley, 1950.

Geology of Australian Ore Deposits. 1st and 2nd ed. (1953 and 1965) Australas. Inst. Min. Metall.

Park, C. F. & MacDiarmid, R. A. *Ore Deposits*. 2nd ed. Freeman, 1970.

Short, M. N. *Microscopic Determination of the Ore Minerals*. U.S. Geol. Surv. Bull. 914, 1940.

Uytenbogaardt, W. & Burke, E. A. J. *Tables for Microscopic Determination of Ore Minerals*. 2nd ed. Elsevier, 1971.

300-level

Courses available *only* at 300-level.

GEOL 301 Geology 301

Advanced Crystallography, Crystal Chemistry and Mineralogy

First session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 201

Optical Crystallography: Oil immersion techniques and mineral determination by dispersion in refractive index liquids. The universal stage, feldspar determination, location of vibration axes, optic axes and 2V measurement, determination of extinction angles.

X-Ray Mineralogy: Theory and practice of X-ray instrument techniques, powder photographs, cell dimensions.

Crystal Chemistry: Solid-solid phase transitions, transformations of secondary co-ordination, transformations of primary co-ordination, transformations of the bond type, transformations of order-disorder, order-disorder reactions and the feldspars. Phase transitions at high pressures. Crystal chemistry of the pyroxenes and amphiboles. Crystal pathology. Aluminium silicates in metamorphism.

Crystallography, Mineralogy: An introduction to modern techniques used in crystallography and mineralogy—X-ray diffraction, X-ray fluorescence, electron microscopy, electron probe, spectroscopy, D.T.A., D.T.G., S.E.M.

Geochemistry: Elements of structural chemistry and some principles of thermodynamics. Structure of the atom, isotopes, radioactivity, ionic size, aggregates of ions, the crystalline state. Mineralogy of the mantle, experiments at high pressure. Meteorites. Distribution of the elements, the geochemical classification. Carbonate sediments. Free energy. Oxidation potential and Eh-pH diagrams. Isotope geology.

Practical: Determination of unknown mineral grains by immersion techniques and in thin-section. Exercises involving use of the universal stage. Determination of crystal class and cell dimensions from powder photographs. Silicate melts. Calculation of problems in geochemistry.

TEXTBOOKS

Krauskopf, K. *Introduction to Geochemistry*. McGraw-Hill, 1967.
or
Mason, B. *Principles of Geochemistry*. 3rd ed. Wiley, 1968.

REFERENCE BOOK

Bloss, F. D. *Crystallography and Crystal Chemistry*. Holt, Rinehart & Winston, 1971.

GEOL 302 Geology 302

Advanced Igneous and Metamorphic Petrology

Second session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 202. (Completion of Geology 301 is desirable but not mandatory)

Theoretical Petrology: The phase rule, systems of one, two and three components. Eutectics and solid solutions. Complex binary systems. Ternary Systems. The application of work on synthetic systems to petrology using, for example, systems such as nepheline-kalsilite-silica, quartz-albite-orthoclase-anorthite-water, diopside-forsterite-silica. Experimental work on the melting of natural rocks. Experimental and theoretical petrology as applied to metamorphic rocks. The mineralogical phase rule. Direct determination of equilibrium curves, reactions of synthesis. Use of thermodynamic data. Experimental appraisal of critical metamorphic reactions, reactions in pelitic assemblages, reactions in siliceous dolomitic limestones, experimental data relating to magnesian schists.

Petrology: Rock kindreds. Concept of primary and derivative magmas, crustal anatexis, magma generation in the upper mantle, partial melting. Tholeiitic, alkaline olivine basalt and high alumina basalt magmas, the basalt tetrahedron. The shoshonite magma. The calc-alkali association. For a more detailed study: Crystallisation of tholeiitic magma, alkali-basalt magma and derivative rocks. Rocks of the shoshonite magma association. High-alumina basalt. Ultramafic rocks. The calc-alkali magma and granitic rocks. Orogenic vulcanicity. The gabbro-eclogite transformation. Lunar basalts. Types of metamorphism. Metamorphic zones, facies, facies series. Metamorphic reactions in carbonate rocks. Hornfelses. Zeolite, greenschist, blueschist and amphibolite facies. Granulites, ecologites and garnet peridotites. Metasomatism. Polymetamorphism.

Textures of rocks: Structures and textures. The sequence of crystallization in granites, the development of K-feldspar megacrysts and quartz-feldspar intergrowths. Exsolution textures. Textures of basic igneous rocks. Textures of metamorphic rocks.

Practical: Study of suites of rocks in hand-specimen and thin-section. Thin-section studies of rock textures. Use of phase diagrams.

TEXTBOOKS

Carmichel, I., Turner, F. J. & Verhoogen, J. *Igneous Petrology*. McGraw-Hill, 1974.

Turner, F. J. *Metamorphic Petrology*. McGraw-Hill, 1968.

REFERENCE BOOKS

Hess, H. H. & Poldervaart, A. eds. *Basalts*. Vols. 1 & 2. Interscience, 1967 and 1968.

Joplin, G. A. *Petrography of Australian Metamorphic Rocks*. A. & R., 1968.

Mehnert, K. *Migmatites and the Origin of Granitic Rocks*. Elsevier, 1968.

Turner, F. J. & Verhoogen, J. *Igneous and Metamorphic Petrology*. 2nd ed. McGraw-Hill, 1960.

Winkler, H. *Petrogenesis of Metamorphic Rocks*. 2nd ed. Springer-Verlag, 1967.

Wyllie, P. J. ed. *Ultramafic and Related Rocks*. Wiley, 1967.

GEOL 303 Geology 303

Advanced Geological Mapping and Geomorphology

First session subject, 6 credit points

(1 hr lecture and 1½ hrs practical per week and up to a total of 10 days of field work)

Pre-req. Geology 201, 203

Advanced Geological Mapping: Field work will normally be conducted at the end of the vacation before first session. Students intending to enrol in this unit should consult the Chairman of the Department during the previous session.

Description: Lecture and laboratory tutorial course work will include the use of aerial photographs (including stereoscopic exercises) and satellite photographs in compiling geological maps. The emphasis will be on the use of these techniques in geological map compilation. The field tutorial will be similar to that outlined for Principles of Geological Mapping, but the area selected for field mapping will be more geologically complex.

Final compilation and interpretation will be completed in laboratory tutorials.

Geomorphology: The study of landforms and some other aspects of geomorphology.

Practical: Study of different landforms in stereoscopic pairs of photographs.

REFERENCE BOOKS

Allum, J. A. E. *Photogeology and Regional Mapping*. Pergamon, 1966.
Lahee, F. H. *Field Geology*. 6th ed. McGraw-Hill, 1961.
Lattman, L. & Ray, R. G. *Aerial Photographs in Field Geology*. Holt, Rinehart & Winston, 1965.
Twidale, C. R. *Geomorphology*. Nelson, Melbourne, 1968.

GEOL 309 Geology 309

Mathematical Methods in Geology

First session subject, 6 credit points

(2 hrs lectures and 4 hrs practical per week)

Pre-req. Geology 201

Description: Scale, mathematical and conceptual geological models. Attributes of types of data, accuracy and precision. Some common geological distributions. Testing of populations to determine distribution. The normal distribution and the significance of moment measures, especially in relation to sediments. Properties of the mean. Hypothesis testing using tests on population means and variances as an illustration of its use in geology. Analysis of variance. Simple and general linear models. Response surface analysis as applied in stratigraphic, chemical and mineralogical data. Classification methods, discriminant functions, factor analysis. Time series analysis. Simulation. Aspects of reserves estimation. The use of mathematical methods in problem solving in geology.

Practical: Preparation of simple computer programs. Use of library programs to solve geological problems.

TEXTBOOKS

Davis, J. C. *Statistics and Data Analysis in Geology*. Wiley, 1972.
or
Harbaugh, J. & Merriam, D. C. *Computer Methods in Geology*. Wiley, 1968.
or
Krumbein, W. C. & Graybill, F. *An Introduction to Statistical Models in Geology*. McGraw-Hill, 1965.

REFERENCE BOOK

Computer Contributions Series of the Geological Survey. Kansas, 1964.

400-level

GEOL 401 Geology 401

Geology IV Honours

Double session subject, 48 credit points

Pre-requisites: Students must satisfy requirements for the award of the degree of BSc in the Faculty of Science *and* have satisfactorily completed at least four 200-level and normally eight 300-level Geology subjects including: Geology 201, 202, 203, 204, 205/305, 206/306, 207/307 and 208/308.

Description: The formal parts of the course will consist of a section on the history of geological thought together with at least two specialist sections chosen from the fields of mineral paragenesis, rock magnetism, biostratigraphy, mathematical geology, coal and petroleum geology, sedimentology. The other parts of the course will be field and laboratory projects, seminars and study of selected references.

TEXTBOOKS

The Head of the Department should be consulted. However, readings in "History of Geological Thought" will be selected from the following:—

Adams, F. D. *The Birth and Development of the Geological Sciences*. Dover, 1954 (reprint of 1938 edition).
Cloud, P. *Adventures in Earth History*. Freeman, 1970.
Geikie, A. *The Founders of Geology*. 2nd ed. Dover, 1962 (Reprint of 1905 edition).

HISTORY

100-level

HIST 101 English Social History, 1750-1940

Double session subject, 12 credit points

During the year emphasis is placed upon economic development, class relationships, education, religion, Victorian respectability and the emergence of the welfare state.

Credit for completion of the first session will be given only after successful completion of the second session.

REFERENCE BOOKS

Battiscombe, G. *Shaftesbury: A Biography of the Seventh Earl, 1801-1885.* Constable, London, 1974.
Best, G. *Mid Victorian Britain, 1851-75.* Weidenfeld & Nicolson, London, 1971. Paperback.
Bottomore, T. B. *Sociology.* Unwin, London, 1967. Paperback.
Breach, R. W. & Hartwell, R. M. *British Economy and Society, 1870-1970.* O.U.P., 1972. Paperback.
Briggs, A. *The Age of Improvement.* Longmans, London, 1960. Paperback.
Carr, E. H. *What is History?* Penguin, London, 1964. Paperback.
Chadwick, O. *The Victorian Church.* Vol. I. London, 1966; Vol. II, London, 1970.
Checkland, S. G. & E. O. A. eds. *The Poor Law Report of 1834.*
Churchill, W. S. *The People's Rights.* Jonathan Cape, London, 1970.
Clark, G. S. R. Kitson. *The Making of Victorian England.* Methuen, London, 1965. Paperback.
Clark, G. S. R. Kitson. *An Expanding Society: Britain, 1830-1900.* M.U.P., 1967. Paperback.
Clark, G. S. R. Kitson. *Churchmen and the Condition of England, 1832-1885.* Methuen, London, 1973. Penguin, London, 1974.
Eaglesham, E. *Foundations of Twentieth Century Education.* R. & K. P., London, 1967.
Gash, N. *The Age of Peel.* Vol. I. Arnold, London, 1968. Paperback.
Gash, N. *The Age of Peel.* Vol. II. Arnold, London, 1972. Paperback.
Halévy, E. A. *A History of the English People in the Nineteenth Century.* Vol. 3; *The Triumph of Reform.* Benn, London, 1961. Paperback.
Harrison, J. F. C. *Society and Politics in England, 1780-1960.* Harper, New York, 1965. Paperback.
Harrison, J. F. C. *The Early Victorians, 1832-51.* Weidenfeld & Nicolson, London, 1971. Paperback.
Hay, J. R. *The Origins of the Liberal Welfare State, 1906-1914.* Macmillan, London, 1975. Paperback.
Hollis, P. *Class and Conflict in Nineteenth Century England, 1815-1850.* R. & K. P., London, 1973. Paperback.
McCord, N. *The Anti-Corn Law League.* Unwin, London, 1968.
McBriar, A. M. *Fabian Socialism and English Politics, 1884-1918.* C.U.P., 1966. Paperback.
Marshall, D. *Industrial England, 1776-1851.* Routledge & Kegan Paul, London, 1973.
Midwinter, E. C. *Nineteenth Century Education.* Longmans, London, 1970. Paperback.
Pelling, H. *A History of British Trade Unionism.* Penguin, London, 1963. Paperback.
Pelling, H. *A Short History of the Labour Party.* 2nd ed. Macmillan, London, 1965.
Perkin, H. *The Origins of Modern English Society, 1780-1880.* R. & K. P., London, 1969. Paperback.

Plumb, J. H. *England in the Eighteenth Century*. Penguin, London, 1950. Paperback.
Rich, E. E. *The Education Act of 1870*. Longmans, London, 1970.
Rose, M. E. *The Relief of Poverty, 1834-1914*. Macmillan, London, 1972.
Simon, B. *Studies in the History of Education, 1780-1870*. Lawrence & Wishart, London, 1960.
Simon, B. *Education and the Labour Movement*. Lawrence & Wishart, London, 1965.
Taylor, Arthur J. *Laissez Faire and State Intervention in Nineteenth Century Britain*. Macmillan, London, 1975. Paperback.
Turner, B. *Free Trade and Protection*. Longmans, London, 1971. Paperback.

All students must purchase from the University Bookshop a copy of Harrison, J. F. C. *Society and Politics in England, 1780-1960*. Harper, New York, 1965 Paperback.

200-level

HIST 209 Russian History, 1825-1964* A

Double session subject, 18 credit points

The subject is designed to introduce students to certain broad themes of Russian history, while making them thoroughly conversant with the chief events in the history of modern Russia. Class relationships and economic and political development will be emphasized throughout. Session I will be devoted to the history of Tsarist Russia down to 1914. Session II will deal with the rise of Social-Democracy in Russia, the end of the Autocracy and the development of the Soviet Union.

Credit for completion of the first session will be given only after successful completion of the second session.

REFERENCE BOOKS

Billington, J. H. *The Icon and the Axe*. Random House, N.Y., 1969. Paperback.
Blum, J. *Lord and Peasant in Russia from the 9th to the 19th Century*. Princeton U.P., 1971. Paperback.
Dobb, M. *Soviet Economic Development Since 1917*. Routledge & Kegan Paul, London, 1966.
Florinsky, M. T. *Russia: A History and an Interpretation*. Vol. 2. Macmillan. N.Y., 1964.
Harcave, S. *Readings in Russian History*. Vols. 1 & 2. Crowell, N.Y., 1963. Paperback.
Lyashchenko, P. G. *History of the National Economy of Russia to 1917*. Macmillan, N.Y., 1949.
Nettle, J. P. *The Soviet Achievement*. Thames & Hudson, London, 1967. Paperback.
Seton Watson, H. *The Russian Empire, 1801-1917*. O.U.P., London, 1967.
Treadgold, D. W. *Twentieth Century Russia*. Rand McNally, N.Y., 1958.
Westwood, J. N. *Endurance and Endeavour: Russian History 1812-1971*. O.U.P., London, 1973. Paperback.
Venturi, F. *Roots of Revolution: A History of the Populist and Socialist Movements in 19th Century Russia*. Grosset & Dunlap, N.Y., 1964. Paperback.

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* Not to be offered in 1976.

HIST 210 Australian Social History, 1850-1930 A

Double session subject, 18 credit points

The program for the two sessions is as follows:

(a) Australian social history from 1850 to 1890. The principal themes for study are the relations between social classes, demographic change, and social welfare. Study will be based chiefly on the examination of primary records.

(b) Australian social history from 1890 to 1950. The emphasis remains as in session 1.

Credit for completion of the first session will be given only after successful completion of the second session.

REFERENCE BOOKS

Appleyard, R. *British Emigration to Australia.* A.N.U. Press, 1964.
Austin, A. G. *Australian Education, 1788-1900.* Pitman, Melbourne, 1961.
Barcan, A. *A Short History of Education in N.S.W.* Martindale, Sydney, 1965.
Beever, M. & Smith, F. B. *Historical Studies: Selected Articles.* Second Series M.U.P., 1967.
Bottomore, T. B. *Sociology.* Allen & Unwin, London, 1962.
Clark, C. M. H. *Selected Documents in Australian History.* Vol. 2. Angus & Robertson, Sydney, 1955.
Crowley, F. ed. *Modern Australia in Documents.* Vols. I & II. Melbourne, 1973.
Ebbels, R. N. *The Australian Labour Movement 1850-1907.* Lansdowne Press, Sydney, 1965. Paperback.
Gollan, R. A. *Radical and Working Class Politics.* A.N.U. Press, 1967. Paperback.
Sawer, G. *Australian Federal Politics and Law, 1901-1929.* M.U.P., 1956.
Sawer, G. *Australian Federal Politics and Law, 1929-1950.* M.U.P., 1963.
Ward, R. B. *The Australian Legend.* O.U.P., Melbourne, 1960.

HIST 213 Religion and Society in Britain from the Reformation A

Double session subject, 24 credit points

The subject is concerned with the history of religion in its relations to three themes:

(a) Crisis in Government with particular reference to the Henrician Reformation, the Elizabethan Settlement, the Puritan Revolution, and the Revolution of 1688.

(b) Social developments, such as the rise of capitalism, the industrial revolution, and the relations between social classes.

(c) The history of ideas with particular reference to the challenge to religious faith from rationalism and the scientific revolution.

Session I: 1517-1660. From the Reformation to the Puritan Revolution.

Session II: 1738-1900. From the Evangelical Revival to the end of the Victorian Age.

Documents: Documents to be studied in tutorials will be selected from G. R. Elton. *The Tudor Constitution.* C.U.P., 1960 and R. P. Flindall, ed. *The Church of England, 1815-1948: A Documentary History.* London, S.P.C.K., 1972. These books must be purchased by each student.

REFERENCE BOOKS

Andrews, S. *Methodism and Society*. Longman, 1970.
Ashley, M. P. *England in the Seventeenth Century*. Penguin, 1952.
Bainton, R. H. *The Reformation of the Sixteenth Century*. Hodder & Stoughton, 1953.
Bindoff, S. T. *Tudor England*. Penguin, 1950.
Brown, F. K. *Fathers of the Victorians: The Age of Wilberforce*. C.U.P., 1961.
Chadwick, O. *The Reformation*. Penguin, 1964.
Chadwick, O. *The Victorian Church*. 2 vols. Black, 1966, 1967.
Cragg, G. R. *The Church and the Age of Reason, 1648-1789*. Penguin, 1960.
Davies, R. E. *Methodism*. Penguin, 1963.
Dickens, A. G. *The English Reformation*. Batsford, 1964.
Dickens, A. G. *Thomas Cromwell and the English Reformation*. E.U.P., 1959.
Elton, G. R. *England under the Tudors*. Methuen, 1955.
Elton, G. R. *The Tudor Revolution in Government*. C.U.P., 1953.
Grimm, H. J. *The Reformation Era*. Macmillan, 1954.
Haller, W. *The Rise of Puritanism*. Harper, 1957.
Hill, C. *The Century of Revolution, 1603-1714*. Nelson, 1961.
Hill, C. *Puritanism and Revolution*. Secker & Warburg, 1958.
Kenyon, J. P. *The Stuart Constitution*. C.U.P., 1966.
Knappen, M. M. *Tudor Puritanism*. Peter Smith, 1963.
Knox, R. A. *Enthusiasm*. O.U.P., 1950.
Neale, J. E. *Elizabeth I and her Parliaments*. St. Martin's Press, 1953.
Parker, T. M. *The English Reformation to 1558*. O.U.P., 1950.
Rupp, E. G. *Studies in the Making of the English Protestant Tradition*. C.U.P., 1966.
Sykes, N. *Church and State in England in the XVIIIth Century*. Archon, 1962.
Symondson, A. *The Victorian Crisis of Faith*. S.P.C.K., 1970.
Tawney, R. H. *Religion and the Rise of Capitalism*. Penguin, 1961.
Trevor-Roper, H. R. *Religion, the Reformation and Social Change*. Clark.
Vidler, A. R. *The Church and the Age of Revolution*. Penguin, 1961.
Wearmouth, R. F. *Methodism and the Common People of the Eighteenth Century*. Epworth, 1946.
Weber, M. *The Protestant Ethic and the Spirit of Capitalism*. Unwin, 1967.

300-level

HIST 311 French History, 1700-1940 B

Double session subject, 24 credit points

(a) Session 1: The chief events in French history from the age of Louis XIV to 1815 with emphasis on the growth of the state; the relationship of state and society; and with particular reference to science, enlightenment and revolution in French history to 1815. The emphasis in this part of the course will be on the relationship of the Enlightenment to the French Revolution.

(b) Session 2: The approach will be the same as in Session 1, the only difference being in the period to be covered, namely, from 1815 to 1940. The course will include a detailed study of France in the age of Napoleon III.

REFERENCE BOOKS

Adams, W. E. ed. *The Western World: From 1700*. New York, 1968.
Cassirer, E. *The Philosophy of the Enlightenment*. Boston, 1962. Paperback.
Craig, G. A. *Europe Since 1815*. New York, 1971.

Crocker, L. G. *An Age of Crisis. Man and World in Eighteenth Century French Thought.* Baltimore, 1959.
Denholm, A. *France in Revolution: 1848.* Sydney, 1972.
Dorn, W. L. *Competition for Empire 1740-1763.* Harper & Row, New York, 1964. Paperback.
Halsted, J. B. ed. *December 2, 1851.* New York, 1972.
Harvey, D. J. *France Since the Revolution.* New York, 1968. Paperback.
Kiernan, C. *The Enlightenment and Science in Eighteenth-Century France.* Oxford, 1973.
Lively, J. *The Enlightenment.* London, 1966. Paperback.
Martin, K. *French Liberal Thought in the Eighteenth Century.* London, 1962.
McManners, J. *Lectures in European History, 1789-1914.* Blackwell, Oxford, 1966.
Stearns, P. N. *European Society in Upheaval.* New York, 1975.

HIST 312 Modern Southeast Asian History B

Double session subject, 24 credit points

The basic aim of this subject is to introduce students to the nature and history of neighbouring societies which differ radically from those of European type; to discuss key problems of culture contact, especially those stemming from Western colonialism; and to analyse the historical sources of major problems in the region.

The subject begins with a broad geographical, social, and philosophical analysis. Then follows some consideration of the principal pre-European states and empires, with the stress on the origin and nature of their particular culture patterns. The central part of the course deals with the European impact and the Southeast Asian response, contrasting Dutch, British, French, and Australian systems of administration in the East Indies, Malaya, Indochina, and New Guinea respectively. This leads on naturally to discussion of the causes of current social, economic and political patterns and problems.

Generally, the lectures concentrate on specific examples of particular problems (e.g. Western political forms in Indonesia), with some reference by extension to Burma, Thailand, and the Philippines. Some lectures (e.g. on mediaeval Indonesian art) are illustrated; and tapes are used in some tutorials.

REFERENCE BOOKS

Bastin, J. ed. *The Emergence of Modern Southeast Asia, 1511-1957.* Prentice-Hall, N.J., 1967. Paperback.
Bastin, J. & Benda, H. J. *A History of Modern Southeast Asia.* Prentice-Hall, N.J., 1968. Paperback.
Benda, H. J. & Larkin, J. A. *The World of Southeast Asia: Selected Historical Readings.* Harper & Row, New York, 1967. Paperback.
Burling, R. *Hill Farms and Padi Fields.* Prentice-Hall, N.J., 1965. Paperback.
Cady, J. F. *Southeast Asia: Its Historical Development.* McGraw-Hill, New York, 1964.
Chesneaux, J. *The Vietnamese Nation—Contribution to a History.* (trans. M. Salmon). Current Book Distributors, Sydney, 1966. Paperback.
Corpuz, D. D. *The Philippines.* Spectrum/Prentice-Hall, N.J., 1976.
Fitzgerald, F. *Fire in the Lake.* Little-Brown, Boston/Random House, New York/Macmillan, London, 1972. Paperback.
Hall, D. G. E. *A History of Southeast Asia.* 3rd ed. Macmillan, London, 1968. Paperback.
Hudson, W. J. ed. *Australia and Papua-New Guinea.* Sydney U.P., 1971. Paperback.

Legge, J. D. *Indonesia*. Prentice-Hall, N.J., 1964. Paperback.
McVey, R. ed. *Indonesia*. Yale U.P., New Haven, 1963.
Steinberg, D. J. ed. *In Search of Southeast Asia—A Modern History*. Pall Mall, London/Praeger, N.Y., 1971. Paperback.
Tas, S. *Indonesia: The Underdeveloped Freedom*. Pegasus, N.Y., 1974.
Winstedt, R. *Malaya and Its History*. 7th ed. Hutchinson, London, 1966. Paperback.

HIST 314 Australian Social History Since the Depression* B

Double session subject, 24 credit points

This subject will be concerned with the description and analysis of changes in Australian society since 1930. Its principal topics of study are:

(1) Changes in the quality and quantity of the population, with special reference to Immigration.
(2) The changing role of women.
(3) Changes in the purposes and activities of trade unions.
(4) Policy and structural changes within the Labour Party.
(5) The "New Nationalism", with special reference to Australian attitudes to Asia.
(6) The adaptation of the non-Labour parties to social change.
(7) Changing leisure patterns, and attitudes towards work.
(8) The history of education.
(9) The shares of wealth and the problem of poverty.
(10) The relationship between social class and political control.
(11) Urbanization and its social results.
(12) The "new consciousness" of aborigines.

The study of these topics will involve some comparison between their Australian context and that of some other country, usually the United Kingdom. Students will be expected to draw principally on primary sources for their evidence.

TEXTBOOK

Crowley, F. ed. *Modern Australia in Documents*. Vol. II, 1939-1970, Melbourne, 1973.

REFERENCE BOOKS

Appleyard, R. *British Emigration to Australia*. A.N.U., 1964.
Barcan, A. *A Short History of Education in N.S.W*. Sydney, 1964.
Boehm, E. A. *Twentieth Century Economic Development in Australia*. Melbourne, 1971.
Bottomore, T. *Sociology*. London, 1972.
Davies, A. & Encel, S. ed. *Australian Society*. Melbourne, 1970.
Horne, D. *The Lucky Country*. Melbourne, 1965.
Mackenzie, N. *Women in Australia*. Melbourne, 1962.
Mayer, H. ed. *Australia's Political Patterns*. Melbourne, 1973.
Murray, R. *The Split*. Melbourne, 1970.
Playford, J. & Kersner, D. eds. *Australian Capitalism*. Melbourne, 1972.
Stevens, F. *Racism, the Australia Experience*. Sydney, 1972.
Stephenson, R. *Women in Australian Society*. Melbourne, 1970.
Titmuss, R. *Essays on the Welfare State*. London, 1970.

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* Not to be offered in 1976.

400-level

HIST 401 History IV (Honours)

Details of this subject will be announced later. Students are advised to contact the Department.

HISTORY AND PHILOSOPHY OF SCIENCE

100-level

HPS 140 Greek Science A

Double session subject, 12 credit points

Lecture/week 2; Tutorials/week 1; Seminars/week —.

Assessment: 2 examinations; 3 essays.

Pre-req. N/A

It is commonly stated that natural science as an intellectual discipline had its origins in Greece about 600 B.C. The course begins with a brief account of Egyptian and Babylonian science and civilizations and examines in detail the following topics; presocratic philosophy; the metaphysics of Socrates; Plato and Aristotle and the influence these views had on the development of science; Aristotle and his scientific thought; Hellenistic science and the decline of Greek Science. Each topic is discussed in the context of political, social, religious and economic developments which influenced the progress of science itself and which were influenced in turn by that progress. The course does not require any previous training in science or mathematics.

TEXTBOOKS

Aristotle. *On the Heavens*. Loeb.
Clagett, M. *Greek Science in Antiquity*. Collier Books.
Kuhn, T. S. *The Copernican Revolution*. Vintage Books.
Plato. *The Republic*. Penguin.
Taylor, A. E. *Aristotle*. Dover.

HPS 150 The Scientific Revolution and the Seventeenth Century A

Double session subject, 12 credit points

In the seventeenth and early eighteenth centuries, Europeans began to look at the world around them in new ways. New questions were developed.

Fundamental changes took place in science in this period: Galileo created a new dynamics; Kepler revised the laws of planetary motion; and Newton, building on their work, set out a radically new theory of the universe. In medicine, anatomy and physiology as well as in philosophy and religion, old, established ideas were challenged by Vesalius, Harvey, Bacon, Descartes, Leibniz and many others. Taken all together, the work of these men amounted to an intellectual revolution.

The course begins with a brief examination of major trends in Greek and medieval science, and proceeds to discuss five groups of topics.

Bacon and Baconianism: Empiricism; Experimentation and the virtuosi; the idea of Progress.

Descartes and Cartesianism; Rationalism; the Revival of Atomism; Materialism.

Newton and Newtonianism; the "New Philosophy"; The Implications of the New Dynamics and Astronomy; The Mathematisation of Science.

Science and Religion: The Decline of Superstition and the Growth of Scepticism; the Physico-Theologists; Deism and the Argument of Design.

General Topics: Philosophy and Science; Methodology, The Problem of Certainty; Literature, Language and Science; The Battle of the Ancients

and Moderns; The Advent of the Age of Reason. Early Scientific Institutions.

TEXTBOOKS

Cornford, F. M. *Before and After Socrates*. Cambridge.
Hall, A. R. *The Scientific Revolution, 1500-1800*. Longmans.
Hall, A. R. *From Galileo to Newton, 1630-1720*. Collins.
Hall, M. B. ed. *Nature and Nature's Laws & Documents of the Scientific Revolution*. Harper.
Kuhn, T. S. *The Copernican Revolution*. Random House.
Kuhn, T. S. *The Structure of Scientific Revolutions*. Phoenix Books.
Taylor, A. E. *Aristotle*. Dover.

200-level

HPS 240 Greek Science B

Double session subject, 18 credit points

(Only 6 credit points if student has already passed Greek Science A or Greek Science in 1975)

Lectures/week 2; Tutorials/week —; Seminars/week 1.

Assessment: 1 examination; 3 essays; 2 seminar papers.

Pre-req. "Greek Science A" or "The Scientific Revolution and the Seventeenth Century A"

SYLLABUS AND TEXTBOOKS

As for HPS 110 Greek Science A.

HPS 250 The Scientific Revolution and the Seventeenth Century B

Double session subject, 18 credit points

(Only 6 credit points if student has already passed "The Scientific Revolution and the Seventeenth Century A")

Lectures/week 2; Seminars/week 1.

Assessment: 1 examination; 3 2000 word essays; 2 seminar papers.

SYLLABUS AND TEXTBOOKS

As for HPS 150 The Scientific Revolution and the Seventeenth Century B.

HPS 210 The Darwinian Revolution A

Double session subject, 18 credit points

The historical and philosophical development of the idea of biological evolution and its impact on Western thought.

The course will begin with a general survey of biological thought and practice in the eighteenth and early nineteenth centuries, considered in relation to the current intellectual background.

This will provide a foundation for the study of the emergence of evolutionary ideas through the application of historical explanation to the biological problems of form and development, culminating in the fully articulated Darwinian theory of evolution.

A detailed examination of the Darwinian theory of evolution and its reception will follow.

Students will be expected to read extensively and to engage in co-operative group research in analyzing the impact of Darwinism on later nineteenth and twentieth century scientific, religious, social, economic or political ideas. An inter-disciplinary approach will be stressed in selecting themes for research.

REFERENCE BOOKS

Appleman, P. ed. *Darwin—A Norton Critical Edition*. Norton.
Bury, H. B. *The Idea of Progress*. Dover.
Coleman, W. *Biology in the Nineteenth Century*. Wiley History of Science Series.
Collingwood, R. G. *The Idea of Nature*. Galaxy.
Darwin, C. *The Origin of Species*. Pelican.
Darwin, C. *The Voyage of the "Beagle"*. Everyman.
Glass, B. *et al.*, eds. *Forerunners of Darwin, 1745-1859*.
Merz, J. T. *A History of European Thought in the Nineteenth Century*. Vols. 1, 2, 3 & 4, Dover.
Smith, P. *The Enlightenment, 1687-1776*. Collier. *The Empiricists*. Dolphin.

HPS 220 Science and Society A

Double session subject, 18 credit points

An account of the growth of the scientific movement from the early 17th to the 20th century, in relation to

(a) its social and cultural environment and the effects of social structures and social changes upon it;

(b) its internal organisation;

(c) its effects, intellectual and (via technology) material, upon society.

Session 1: The emergence of an independent social role for science, as formulated by Bacon and actualized by the Royal Society and other organizations in the 17th century, and its subsequent development in Europe and elsewhere to the end of the 19th century; with emphasis on topics such as the Enlightenment, the Industrial Revolution, education, government and public attitudes in relation to the scientific movement in different countries during this period.

Session 2: Science in 20th century society, dealing with such topics as science and war, the relation between science, technology and economic growth, government science policy, the movement for social responsibility in science and the anti-science movement, ethical issues in scientific progress, modern pressures on traditional scientific values, science in totalitarian and developing countries, the dilemmas of "trans-science".

TEXTBOOKS

Session 1

David, J. Ben. *The Scientists Role in Society*.

Session 2

Barnes, S. B. ed. *The Sociology of Science*.
Sklair, L. *Organised Knowledge*.

HPS 251 Philosophical and Ideological Perspectives in Science IA

First session subject, 9 credit points

Contact hours: Lecture 2; Tutorial 1.

Assessment: 1 examination; 1 essay; 1 tutorial paper.

Pre-req. HPS 150 The Scientific Revolution and the Seventeenth Century A or *HPS 250 The Scientific Revolution and the Seventeenth Century B*

The subject will focus on the epistemological issues of the status and demarcation of scientific knowledge, beginning with an examination of the problem of induction and the different resolutions of it suggested by philosophers and scientists such as Hume, Mach, Popper and Medawar. The more sociological views of science put forward by Kuhn, Ravetz and Ziman will then be discussed, leading to a consideration of the influence of science as the dominant knowledge system of contemporary society.

TEXTBOOKS

Kolakowski, L. *Positivist Philosophy*. Pelican.
Lakatos, I. & Musgrave, A. E. *Criticism and the Growth of Knowledge*. Cambridge U.P.
Popper, K. R. *The Logic of Scientific Discovery*. Hutchinson. *Conjectures and Refutations*. Routledge, Kegan, Paul.
Revetz, J. R. *Scientific Knowledge and its Social Problems*. Penguin.

REFERENCE BOOKS

Hume, D. *An Enquiry concerning Human Understanding*. Anchor.
Medawar, P. B. *Induction and Intuition in Scientific Thought*. Methuen University Paperbacks.
Kuhn, T. S. *The Structure of Scientific Revolutions*. Chicago U.P.
Ziman, J. *Public Knowledge*. Cambridge U.P.

HPS 252 Philosophical and Ideological Perspectives of Science IIA

Second session subject, 9 credit points

Contact hours: Lecture 2; Tutorial 1.

Assessment: 1 examination; 1 essay; 1 tutorial paper.

Pre-req. HPS 150 The Scientific Revolution and the Seventeenth Century A or *HPS 250 The Scientific Revolution and the Seventeenth Century B*

An initial examination of the contention that science is neither objective nor ideologically neutral. This will be followed by an analysis of selected scientific theories, focusing on the demonstration of values and ideological influences in these theories and examining the ways in which these same theories in their turn have been used as scientific validation of the very values and ideologies they embody.

The major area of study used to develop this thesis will be evolutionary biology and ideology.

TEXTBOOKS

Berger, P. L. & Luckman, T. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Doubleday, N.Y., 1966. Also Anchor Paperback.
Darwin, C. *The Origin of Species*. (Reprint of 1st ed.) Pelican Classics, 1970.
Malthus, T. R. *An Essay on the Principle of Population*. (Reprint of Original Polemic of 1798, and final restatement of 1830), Pelican Classics, 1970.
Plamenatz, J. *Ideology*. Macmillan, London, 1970. Also Paperback. (For a general analysis of the concept.)

REFERENCE BOOKS

Aiken, H. D. *The Age of Ideology: The Nineteenth Century Philosophers.* Mentor Paperback, N.Y., 1956. (For a historical perspective.)
Appleman, P. ed. *Darwin—A Norton Critical Edition.* Norton.
Burrow, J. W. *Evolution and Society: A study in Victorian Social Theory.* Cambridge, 1966. Also Paperback.
Mannheim, K. *Ideology and Utopia: An Introduction to the Sociology of Knowledge.* Routledge, London, 1954. Also Paperback.

300-level

HPS 310 The Darwinian Revolution B*

Double session subject, 24 credit points

An advanced course in the historical and philosophical development of the idea of biological evolution and its impact on Western thought.

The subject will begin with a general survey of biological thought and practice in the eighteenth and early nineteenth centuries, considered in relation to the current intellectual background.

This will provide a foundation for the study of the emergence of evolutionary ideas through the application of historical explanation to the biological problems of form and development, culminating in the fully articulated Darwinian theory of evolution.

A detailed examination of the Darwinian theory of evolution and its reception will follow.

Students will be expected to read extensively and to engage in co-operative group research in analyzing the impact of Darwinism on later nineteenth and twentieth century scientific, religious, social, economic or political ideas. An inter-disciplinary approach will be stressed in selecting themes for research.

REFERENCE BOOKS

Appleman, P. ed. *Darwin—A Norton Critical Edition.* Norton.
Bury, H. B. *The Idea of Progress.* Dover.
Coleman, W. *Biology in the Nineteenth Century.* Wiley History of Science Series.
Collingwood, R. G. *The Idea of Nature.* Galaxy.
Darwin, C. *The Origin of Species.* Pelican.
Darwin, C. *The Voyage of the "Beagle".* Everyman.
Glass, B. *et al.*, eds. *Forerunners of Darwin, 1745-1859.*
Merz, J. T. *A History of European Thought in the Nineteenth Century.* Vols. 1, 2, 3 & 4, Dover.
Smith, P. *The Enlightenment, 1687-1776.* Collier. *The Empiricists.* Dolphin.

HPS 320 Science and Society B

Double session subject, 24 credit points

An account of the growth of the scientific movement from the early 17th to the 20th century, in relation to

(a) its social and cultural environment and the effects of social structures and social changes upon it;

(b) its internal organisation;

(c) its effects, intellectual and (via technology) material, upon society.

* This subject will not be offered in 1976.

Session 1: The emergence of an independent social role for science, as formulated by Bacon and actualized by the Royal Society and other organizations in the 17th century, and its subsequent development in Europe and elsewhere to the end of the 19th century; with emphasis on topics such as the Enlightenment, the Industrial Revolution, education, government and public attitudes in relation to the scientific movement in different countries during this period.

Session 2: Science in 20th century society, dealing with such topics as science and war, the relation between science, technology and economic growth, government science policy, the movement for social responsibility in science and the anti-science movement, ethical issues in scientific progress, modern pressures on traditional scientific values, science in totalitarian and developing countries, the dilemmas of "trans-science".

TEXTBOOKS

Session 1

David, J. Ben. *The Scientists Role in Society.*

Session 2

Barnes, S. B. ed. *The Sociology of Science.*
Sklair, L. *Organised Knowledge.*

HPS 351 Philosophical and Ideological Perspectives in Science IB

First session subject, 12 credit points

(Only 3 credit points if student has already passed HPS 251 Philosophical and Ideological Perspectives in Science 1A)

Contact hours: Lecture 2; Tutorial 1; Seminar 2 (per fortnight).

Assessment: 1 examination; 1 essay; 1 tutorial paper; 1 seminar paper.

Pre-req. HPS 150 The Scientific Revolution and the Seventeenth Century A or *HPS 250 The Scientific Revolution and the Seventeenth Century B*

SYLLABUS, TEXTBOOKS AND REFERENCE BOOKS

As for HPS 251 Philosophical and Ideological Perspectives of Science IA.

HPS 352 Philosophical and Ideological Perspectives in Science IIB

Second session subject, 12 credit points

(Only 3 credit points if student has already passed HPS 252 Philosophical and Ideological Perspectives in Science IIA)

Contact hours: Lecture 2; Tutorial 1; Seminar 2 (per fortnight).

Assessment: 1 examination; 1 essay; 1 tutorial paper; 1 seminar paper.

Pre-req. HPS 150 The Scientific Revolution and the Seventeenth Century A or *HPS 250 The Scientific Revolution and the Seventeenth Century B*

SYLLABUS, TEXTBOOKS AND REFERENCE BOOKS

As for HPS 252 Philosophical and Ideological Perspectives of Science IIA.

400-level

HPS 400 History and Philosophy of Science IV

Double session subject, 48 credit points

Subject requirements are as follows:

(a) A dissertation of approximately 20,000 word length.

(b) Historical theory and method for three contact hours per week throughout Session I.

(c) Advanced philosophy of science for two contact hours per week throughout Session I.

(d) Two of the following courses to run for two contact hours per week for ten weeks of Session II:

Science and Ideology

Three major themes will be considered:

(i) The internal ideology of science; historical origins and contemporary adequacy.

(ii) The influence of external ideologies on science, eg. Marxism, National Socialism, Industrial Capitalism.

(iii) The impact of the ideology of science on non-scientific fields of thought.

Aspects of Medieval Science

The reception and analysis of Aristotelianism and its relationship to philosophical and theological developments in the thirteenth and fourteenth centuries. Methodology, neoplatonism and the development of mathematical procedures. Technology and science. Science and the medieval world view.

Science Policy in the Australian Context

Discussion and research will focus on four major topics:

(i) The conventional model of science policy, which examines the contributions of research and development to national goals.

(ii) A critique of this model in the light of the particular needs of Australia.

(iii) An analysis of the impact of Western technology on developing countries, with special reference to Australia's role as both a developed, donor nation and an underdeveloped client nation.

(iv) The role of scientists in the formulation of science policy.

Scientific Thought in the Nineteenth Century

Philosophy of science; a study of the writings of J. F. W. Herschel, W. Whewell, J. S. Mill, A. Comte and E. Mach. Romanticism: F. Schelling, L. Oken, G. Hegel and the Marxists.

MATHEMATICS

TEXTBOOKS AND REFERENCES

Students will be advised on the appropriate texts for each subject in the first lecture of the subject. In all cases, the lecturer should be consulted before textbooks are purchased.

100-level

MATH 101 Mathematics IA

Double session subject, 12 credit points

Pre-req. Either a pass in 2F (or higher) H.S.C. Mathematics, or Mathematics at level 2S, provided that the candidate's performance in this subject, and his general level of attainment are at standards acceptable to the Faculty Chairman

(a) Calculus Methods (Functions, differentiation, integration and applications, partial differentiation).

(b) Algebra Methods (Complex numbers, matrices, determinants, systems of equations, *i*, *j*, *k* vectors).

(c) Numerical Analysis (Finite difference calculus, iterative techniques, elementary FORTRAN).

(d) Further Calculus Methods (Polar co-ordinates, introduction to sequences and series, first and second order differential equations).

REFERENCE BOOK

Purcell, E. J. *Calculus and Analytic Geometry. 2nd ed.* Appleton-Century-Crofts.

MATH 102 Mathematics IB

Double session subject, 12 credit points

Co-req. Mathematics IA

This subject is normally taken by students who intend to major in any branch of Mathematics. It presents the fundamentals as a background for further study at higher levels in Mathematics. The subject is recommended for intending teachers in Mathematics.

(a) Linear Algebra (Real numbers, functions, real linear spaces, kernel and image of a linear map, basis and dimension).

(b) Introduction to Analysis (Sequences, series, limits, continuity, derivatives, Riemann integration).

(c) Introduction to Probability and Statistics (Discrete and continuous random variables, the binomial, normal and Poisson distributions with applications).

(d) Linear Programming (Inequalities, convex sets, physical problems, solution of L.P. problems by graphical means and the Simplex Method).

REFERENCE BOOKS

Giles, J. R. *Real Analysis—An Introductory Course.* Wiley.
Kreyszig, E. *Introductory Mathematical Statistics.* Wiley.
Moore, J. T. *Elementary Linear Algebra: The Viewpoint of Geometry.* McGraw-Hill.

MATH 141 Computing Science IA

Double session subject, 6 credit points

(a) Introduction to Computing
(Computer organization, basic Assembler language, data representation, computer systems, control cards, language translators, monitor, input/output.)

(b) Data Structures
(Strings, lists, trees, stacks, storage management techniques.)

(c) Non-Numerical Applications
Critical paths, decision tables and trees, compiling assembler language, polish notation, syntax analysis.)

REFERENCE BOOK

Gear, C. W. *Introduction to Computer Science*. Science Research Associates, Sydney, 1973.

MATH 142 Computing Science IB

Double session subject, 6 credit points

(a) Batch Mode Problem Solving
(Programming languages FORTRAN and COBOL, debugging techniques, analysis, solution and verification of results of simple problems using batch mode, program documentation, program packages.)

(b) Interactive Problem Solving
(Basic problem-solving techniques, flowcharting, interactive languages BASIC and SIGMA, analysis, solution and verification of results of simple problem using interactive methods.)

REFERENCE BOOK

Gear, C. W. *Introduction to Computer Science*. Science Research Associates, Sydney, 1973.

MATH 143 Computing Science IC

First session subject, 6 credit points

(This subject not to be taken with either Computing Science IA or Computing Science IB.)

(a) Introduction to Computing
(Computer organization, basic Assembler language, data representation, computer systems, control cards, language translators, monitor, input/output.)

(b) Batch Mode Problem Solving
(Programming languages FORTRAN and COBOL, debugging techniques, analysis, solution and verification of results of simple problems using batch mode, program documentation, program packages.)

REFERENCE BOOK

Gear, C. W. *Introduction to Computer Science*. Science Research Associates, Sydney, 1973.

200-level

MATH 201 Mathematics IIA

Double session subject, 12 credit points

Pre-req. Mathematics IA

(a) Multivariate Calculus (Partial derivatives and their applications, multiple integrals).

(b) Fourier Series.

(c) Numerical Analysis (Numerical processes applied to functions, equations, differential equations, integration, matrices).

(d) Complex Variable (Complex functions, analytic functions, Laurent series, singularities, residues, contour integrals and applications).

REFERENCE BOOKS

Conte, S. D. & De Boor, G. *Elementary Numerical Analysis*. McGraw-Hill.

Froberg, C. E. *Introduction to Numerical Analysis*. Addison-Wesley.

Kaplan, W. *Advanced Calculus*. Addison-Wesley.

Keane, A. & Senior, S. A. *Mathematical Methods*. Science Press.

McCracken, D. D. & Dorn, W. S. *Numerical Methods and FORTRAN Programming*. Wiley International.

Polya, G. & Latta, G. *Complex Variables*. Wiley.

Purcell, E. J. *Calculus and Analytic Geometry*. 2nd ed. Appleton-Century-Crofts.

Spiegel, M. R. *Advanced Calculus*. Schaum.

Spiegel, M. R. *Complex Variables*. Schaum.

Wylie, C. R. *Advanced Engineering Mathematics*. 4th ed. McGraw-Hill.

MATH 211 Mathematics IIB

Double session subject, 12 credit points

(Essential for majors in Applied Mathematics)

Co-req. Mathematics IIA

(a) Vector Calculus (Vector functions of several variables, general integral theorems).

(b) Boundary Value Problems (Further work on the solution of differential equations, including series solutions, introduction to boundary value problems, eigenvalues and eigenfunctions, and applications).

(c) Matrix Analysis (Further properties of matrices, eigenvalues, eigenvectors, quadratic forms).

(d) Dynamical Systems (System behaviour, transfer functions, convolution, auto-correlation, spectral analysis).

REFERENCE BOOKS

Boyce, W. E. & Di Prima, R. C. *Elementary Differential Equations and Boundary Value Problems*. Wiley.

Davis, H. E. *Vector Analysis*. Allyn and Bacon.

Kaplan, W. *Operational Methods for Linear Systems*. Addison-Wesley.

Spiegel, M. R. *Vector Analysis*. Schaum.

Wylie, C. R. *Advanced Engineering Mathematics*. 4th ed. McGraw-Hill.

MATH 221 Mathematics IIC

Double session subject, 12 credit points

(Essential for majors in Pure Mathematics)

Pre-req. Mathematics IB

(a) Linear Analysis (Linear Algebra over an arbitrary field, eigenvalues and eigenvectors, canonical forms, inner produce spaces, Hilbert spaces, series, Fourier series, linear differential equations, orthogonalization).

(b) Abstract Algebra. (Introduction to groups.)

(c) Multivariate Differential Analysis (Metric spaces, normed spaces, continuous linear functions, differentiable functions, the derivative as a linear function).

REFERENCE BOOKS

Kreider, D., Kuller, R., Ostberg, D., Perkins, F. *An Introduction to Linear Analysis*. Addison-Wesley.
Lang, S. *Analysis I*. Addison-Wesley.
Ledermann, W. *Introduction to the Theory of Finite Groups*. Oliver and Boyd.

MATH 231 Mathematics IID

Double session subject, 12 credit points

(Essential for majors in Probability, Statistics, Computing Science or Operations Research)

Pre-req. Mathematics IB

Co-req. Mathematics IIA

(a) Probability and Statistics (Sampling distributions, estimation, tests of hypotheses, regression, analysis of variance, design of experiments, and applications).

(b) Computing Science (Introduction to UNIVAC 1106 assembly language, introduction to Algol, data structures, programming techniques, file organization).

REFERENCE BOOKS

Berztis. *Data Structures*. 2nd ed. Academic Press, 1975.
Elson. *Data Structures*. Science Research Associates, 1975.
Kreyszig, E. *Introductory Mathematical Statistics*. Wiley.
Walpole, R. E. & Myers, R. H. *Probability and Statistics for Engineers and Scientists*. Macmillan.

MATH 281 Mathematics IIE

Double session subject, 10 credit points

Pre-req. Mathematics IA

(a) Matrix algebra, eigenvalues, eigenvectors, vector algebra, vector calculus, general integral theorems.

(b) Partial differentiation, multiple integrals, Fourier series, special functions, complex variable.

(c) Further differential equations, series solutions, Laplace and other transforms, introduction to boundary value problems.

REFERENCE BOOK

Keane, A. & Senior, S. A. *Mathematical Methods.* (Combined Edition), Science Press.

MATH 282 Mathematics IIM

First session subject, 4 credit points

Pre-req. Mathematics IA

Partial differentiation, multiple integrals, Fourier series, further work in the solution of differential equations of the first and second order.

REFERENCE BOOK

Keane, A. & Senior, S. A. *Mathematical Methods.* Science Press.

MATH 233 Mathematics IIP

Double session subject, 6 credit points

Co-req. Mathematics IIA or Mathematics IIM

Probability, discrete and continuous distributions, random variables and expected values, sampling distributions, estimation, testing of hypotheses, regression analysis and analysis of variance.

REFERENCE BOOK

Kreyszig, E. *Introductory Mathematical Statistics.* Wiley.

MATH 202 Mathematics IIS

Double session subject, 6 credit points

Co-req. Mathematics IIA or Mathematics IIM

Vector algebra, vector calculus, general integral theorems, matrix algebra, eigenvalues and eigenvectors, linear transformations, vector spaces.

REFERENCE BOOKS

Davis, H. E. *Vector Analysis.* Allyn & Bacon.
Spiegel, M. R. *Vector Analysis.* Schaum.

300-level

MATH 301 Mathematics IIIA

Double session subject, 12 credit points

Pre-req. Mathematics IIA and either Mathematics IIB or Mathematics IIS (MATH 283)

(a) Special Functions (Error, gamma, beta, Bessel, hypergeometric, Legendre, Laguerre and Hermite functions).

(b) Integral Transforms (Laplace, Fourier, Hankel and Mellin transforms).

(c) Conformal Transformations (Elementary transformations, Schwarz-Christoffel transformation, and applications).

(d) Variational Calculus (Fundamentals).

REFERENCE BOOKS

Elsgolc, L. E. *Calculus of Variations*. Pergamon.
Keane, A. *Integral Transforms*. Science Press, Sydney.
Reichel, A. *Special Functions*. Science Press, Sydney.
Speigel, M. R. *Complex Variable*. Schaum.

MATH 302 Mathematics IIIB

Double session subject, 12 credit points

Pre-req. Mathematics IIA and either Mathematics IIB or Mathematics IIS (MATH 283)

(a) Ordinary Differential Equations (The study of the existence, uniqueness and stability of solutions to linear and nonlinear ordinary differential equations and applications).

(b) Partial Differential Equations (First order linear and some non-linear partial differential equations and second order partial differential equations of Mathematical Physics).

REFERENCE BOOKS

Boyce, W. E. & Di Prima, R. C. *Elementary Differential Equations and Boundary Value Problems*. 2nd ed. Wiley.
Dennemeyer, R. *Introduction to Partial Differential Equations and Boundary Value Problems*. McGraw-Hill.
Epstein, B. *Partial Differential Equations*. McGraw-Hill.
Greenspan, D. *Introduction to Partial Differential Equations*. McGraw-Hill.
Hochstadt, H. *Differential Equations*. Holt, Rinehart & Winston.
Sneddon, I. *Elements of Partial Differential Equations*. McGraw-Hill.

MATH 303 Mathematics IIIC

Double session subject, 12 credit points

Pre-req. Mathematics IIA

Numerical Analysis (Recurrence relations, iterative methods, least squares, Gaussian elimination, LR decomposition, eigenvalues and eigenvectors of matrices, LR and QR algorithms, multiple integrals, boundary value problems).

REFERENCE BOOKS

Fox, L. *Numerical Solution of Ordinary and Partial Differential Equations*. Pergamon.
Froberg, C. *Introduction to Numerical Analysis*. Addison-Wesley.
Householder, A. *Theory of Matrices in Numerical Analysis*. Blaisdell.
Varga, R. S. *Matrix Iterative Analysis*. Prentice-Hall.
Wilkinson, J. W. *The Algebraic Eigenvalue Problem*. Oxford University Press.

MATH 311 Mathematics IIID

Double session subject, 12 credit points

(For majors in Applied Mathematics)

Pre-req. Mathematics IIB

Co-req. Mathematics IIIA

(a) Ocean Dynamics (Properties of water waves and ocean currents).

(b) Continuum Mechanics (Elementary continuum mechanics with selected problems from elasticity theory and fluid dynamics).

REFERENCE BOOKS

Ippen, A. *Estuary and Coastline Hydrodynamics*. McGraw-Hill.
Krauss, W. *Dynamics of the Homogeneous and Quasihomogeneous Ocean*. Gebruder Borntraeger, Berlin.
Neumann, G. *Ocean Currents*. Elsevier.

MATH 321 Mathematics IIIE

Double session subject, 12 credit points

(For majors in Pure Mathematics)

Pre-req. Mathematics IIA and Mathematics IIC

(a) Abstract Algebra (Algebraic structures such as groups, rings, fields, Boolean algebras and their quotient structures, embedding of integral domains, construction of the reals, introduction to Galois theory and number theory).

(b) Logic and Set Theory (Introduction to logic, axiomatic set theory, cardinal and ordinal numbers, the axiom of choice, Zorn's Lemma and applications).

REFERENCE BOOKS

Herstein, I. N. *Topics in Algebra*. Ginn Blaisdell.
Mendelson, E. *Introduction to Mathematical Logic*. Van Nostrand.

MATH 322 Mathematics IIIF

Double session subject, 12 credit points

(For majors in Pure Mathematics)

Pre-req. Mathematics IIA and Mathematics IIC

(a) Functional Analysis (Metric spaces, Banach and Hilbert spaces and their dual spaces, linear operators, application to (some of) Fourier series, differential and integral equations, quadrature formulae etc.).

(b) Complex Analysis (Further topics in complex analysis which may include Liouville's theorem, Rouche's theorem, conformal mapping, distribution of zeros).

(c) Multivariate Differential Analysis (Differentiable mappings between normed linear spaces, the derivative as a linear function, chain rule, implicit and inverse function theorems).

REFERENCE BOOKS

Lang, S. *Analysis I and II*. Addison-Wesley.
Levinson, N., Redheffer, R. M. *Complex Variable*. Holden-Day.
Simmons, G. F. *Introduction to Topology and Modern Analysis*. McGraw-Hill.

MATH 331 Mathematics IIIG

Double session subject, 12 credit points

(For majors in Probability, Statistics and Operations Research)

Pre-req. Mathematics IID

(a) Operations Research (Linear, non-linear and dynamic programming, queueing theory, theory of games, simulation).

(b) Stochastic Processes (Probability measures, random variables, branching processes, renewal processes, Markov chains, tests of significance, sequential analysis).

REFERENCE BOOKS

Bhat, U. N. *Elements of Applied Stochastic Processes*. Wiley.
Hillier, R. S. & Lieberman, G. J. *Introduction to Operations Research*. Holden-Day.
Karlin, S. A. *First Course in Stochastic Processes*. Academic Press.
Pollard, J. *Mathematical Models for the Growth of Human Population*. C.U.P.
Sasieni, M., Yaspan, A. & Friedman, L. *Operations Research*. Wiley, Toppan.

MATH 377 Ocean Dynamics

Double session subject, 6 credit points (2 hrs per week)

Pre-req. Mathematics IIB

Co-req. Mathematics IIIA

Not to count with Mathematics IIID

Assessment: By formal examinations, tests and assignments

Edge waves, tidal dynamics, estuary and coastline dynamics, introduction to ocean currents.

REFERENCE BOOKS

Ippen, A. *Estuary and Coastline Hydrodynamics*. McGraw-Hill.
Krauss, W. *Dynamics of the Homogeneous and Quasihomogeneous Ocean*. Gebruder Borntraeger, Berlin.
Neumann, G. *Ocean Currents*. Elsevier.

400-level

MATH 401 Mathematics IV (Honours)

Double session subject, 48 credit points

A student taking Honours would normally take a selection of topics at 4th year level (subject to approval by the Chairman of the Department) and a minor thesis, under the supervision of an appropriate member of staff.

The subject may include topics from: Numerical Analysis; Ocean Dynamics; Nuclear Reactor Theory; Computing Science; Statistics; Probability; Operations Research; Functional Analysis; Measure Theory; Abstract Algebra; Logic; Set Theory; Topology; Perturbation Theory; Matrix Analysis; Continuum Mechanics; Non-linear Partial Differential Equations; Mathematical Methods; or Classical Analysis.

REFERENCE BOOKS

See Lecturer concerned.

MECHANICAL ENGINEERING

The Bachelor of Engineering course in Mechanical Engineering to be introduced is essentially the same as that offered at Wollongong in previous years. Two separate programmes are proposed, one on a full-time basis and the other on a part-time basis.

The Institution of Engineers, Australia, grants full exemption from examinations for admission to the grade of Member to holders of the degree of BE or BSc(Eng) in any of the undergraduate courses offered by the Department of Mechanical Engineering.

The main differences between the course and that offered previously are as follows:

MECH 223 Engineering Dynamics previously called Applied Mechanics II

MECH 224 Systems Dynamics previously called Applied Mechanics III

MECH 325 Machine Dynamics, is now a prescribed subject, whereas it was previously an elective.

CIVL 324 Applied Mechanics IV and CIVL 325 Applied Mechanics V are now electives, whereas they were previously prescribed subjects.

The total number of electives required has been increased to maintain the same quantity of material in the course.

In the part-time program, credit is given for approved industrial full-time employment gained concurrently with the course.*

100-level

MECH 111 Design I

Second session subject, 6 credit points

(28 hrs lectures; 56 hrs tutorials and Drawing Office)

Examination

Principles of Engineering Drawing and Design

Assessment by class assignments and a Conceptual Design Project.

Engineering Technology

One 2 hour examination at the end of the course.

Syllabus Summary

(a) Principles of Engineering Drawing and Design

Limits and fits; elementary riveted, bolted and welded connections; couplings and bearings; brakes, clutches, power screws and springs. Conceptual design.

(b) Engineering Technology

Materials: Classification of materials in common use, occurrence of raw materials, processing of raw materials, refinements and properties of materials.

Manufacture: description and appraisal of the processes classified as forming from liquid or solid, material removal, materials joining.

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* Details of subjects offered by other Departments and forming part of the Mechanical Engineering course (see Schedule C) may be found in the "Description of Subjects" for those Departments.

Machines: analysis of the primary functions of the machine tools and an appraisal of their limitations; principles of operations of common machine tools and illustration of their use.

PRESCRIBED TEXTBOOKS

A.S.CZ-1. 1966. *Australian Standard Engineering Drawing Practice*. I.E.Aust. 1972.
Beakley, G. C. & Chilton, E. G. *Introduction to Engineering Design and Graphics*. Macmillan, 1974.

REFERENCE BOOKS

Levens, A. S. *Graphics—Analysis and Conceptual Design*. 2nd ed. Wiley.
Grant, H. E. *Engineering Drawing with Creative Design*. 2nd ed. McGraw-Hill.
Harrisberger, L. *Engineersmanship—a Philosophy of Design*. Brooks-Cole.
Krick, E. V. *An Introduction to Engineering and Engineering Design*. 2nd ed. Wiley.

200-level

CIVL 212 and MECH 212 Design II

Second session subject, 5 credit points
(28 hrs lectures; 28 hrs tutorials and Drawing Office)

Examination

No formal examination. Students are assessed on the basis of the work completed during the drawing office classes.

Syllabus Summary

(a) Machinery: Permissible stresses; probability of failure and safety factors. Machine elements including shafts, clutches, brakes, springs, power screws and bearings.

(b) Steel Structures: Bolted, riveted and welded connections; simple and built up beams, trusses and columns.

(c) Introduction to timber design.

PRESCRIBED TEXTBOOKS

Faires, V. M. *Design of Machine Elements*. Macmillan.
Gorenc, B. E. *Steel Designer's Handbook*. A. & R.
S.A.A. A.S. 1250 *Steel Structures*. C.A. 8 *Arc Welding in Building Construction*. A.S. 1170 *Loading Code* (Parts I & II). B249 *Design of Shafts for Cranes and Hoists*. CA65 *Timber Engineering*.

REFERENCE BOOK

Gray, C. S. *et al. Steel Designer's Manual*. Crosby Lockwood.

MECH 223 Engineering Dynamics

First session subject, 4 credit points
(28 hrs lectures; 14 hrs tutorials)

Examinations

One 2 hour examination at the end of the course. Other short examina-

tions and tutorial performances will be incorporated in the final assessment.

Syllabus Summary

Kinematics of rigid bodies. Dynamics of rigid bodies in plane motion; moments of inertia, equations of motion, dynamic equilibrium; momentum and impulse, energy analysis. Dynamics of simple mechanisms. Introduction to mechanical vibrations.

PRESCRIBED TEXTBOOKS

Beer, F. P. & Johnston, E. R. *Vector Mechanics for Engineers—Dynamics.* McGraw-Hill.
Hirschhorn, J. *Dynamics of Machinery.* Nelson.

REFERENCE BOOKS

Church, A. H. *Mechanical Vibrations.* Wiley.
Meriam, J. L. *Dynamics.* Wiley.

MECH 251 Experimental Engineering I

First session subject, 4 credit points

(12 hrs lectures; 30 hrs tutorials and laboratory)

Examination

No formal examination. Assessment will be based on laboratory reports all of which are compulsory.

Syllabus Summary

Measuring techniques as applied to temperature, pressure, stress, displacement, velocity, acceleration and fluid flow, under static and dynamic conditions. Sensing elements. Recording instruments and associated equipment. Calibration of instruments. Analyses of experimental results—errors and curve fitting techniques.

REFERENCE BOOKS

To be advised during the course.

MECH 231 Fluid Mechanics I

Second session subject, 4 credit points

(28 hrs lectures; 14 hrs tutorials)

Examination

One 2 hour examination will be held at the end of the course. Short tests may be held during the course and will count towards the final result.

Syllabus Summary

Review of physical properties of fluids; fluid statics and manometry; continuity and momentum equations; rotation and vorticity; equations of motion; steady flow energy equation; fluid flow measurements.

PRESCRIBED TEXTBOOK

Olson, R. M. *"Engineering Fluid Mechanics"*. International.

REFERENCE BOOK

Streeter, V. L. *"Fluid Mechanics"*. McGraw-Hill.

MECH 224 System Dynamics

Second session subject, 4 credit points
(28 hrs lectures; 14 hrs tutorials)

Examination

One 2 hour examination at the end of the course. Other short examinations and tutorial performances will be incorporated in the final assessment.

Syllabus Summary

System classification—ordinary and partial differential equations that commonly occur in engineering problems. Circuit diagrams for mechanical systems; "through" and "across" variables; equilibrium analysis; block diagrams; reduction of equations; concept of state; free and forces response; system functions; stability; sinusoidal response; Fourier Series and Integral; Laplace Transform applied to linear systems.

PRESCRIBED TEXTBOOK

Cannon, R. H. *Dynamics of Physical Systems*. McGraw-Hill.

REFERENCE BOOKS

Churchill, R. V. *Operational Mathematics*. McGraw-Hill.
Haberman, C. M. *Engineering Systems Analysis*. Merrill.
Meriam, J. L. *Dynamics*. Wiley.
Salvadori, M. G. & Schwarz, R. J. *Differential Equations in Engineering Problems*. Prentice-Hall.

MECH 241 Thermodynamics I

First session subject, 4 credit points
(28 hrs lectures; 14 hrs tutorials)

Examination

One 2 hour examination at the end of the course. Other short examinations and tutorial performances will be incorporated in the final assessment.

Syllabus Summary

Concepts and definitions. Energy transfer and the first law. Properties and state of a simple substance. Control-mass and control-volume analysis of thermodynamic systems. Quantum and probability considerations and the concept of entropy. The second Law and corollaries. Application.

PRESCRIBED TEXTBOOK

Reynolds, W. C. *Thermodynamics*. McGraw-Hill.

REFERENCE BOOKS

Sonntag, R. E. & Van Wylen, G. J. *Introduction to Thermodynamics*. Wiley.
Wark, K. *Thermodynamics*. McGraw-Hill.

300-level

MECH 361 Control Systems I

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Principles and techniques applicable to the analysis and design of feedback control systems with particular application to industrial processes. Modelling of control systems. Basic control actions, time domain and frequency domain analysis of linear systems, stability analysis, Nyquist Criterion, Bode Diagrams, Nichols Charts. Analogue computers.

PRESCRIBED TEXTBOOK

Ogata, K. *Modern Control Engineering*. Prentice-Hall.

REFERENCE BOOKS

Dransfield, P. *Engineering Systems and Automaitc Control*. Prentice-Hall.
Harrison, H. L. & Bolinger, J. G. *Introduction to Automatic Controls*. 2nd ed. International.
Kuo, B. C. *Automatic Control Systems*. Prentice-Hall.
Raven, F. H. *Automatic Control Engineering*. 2nd ed. McGraw-Hill.

MECH 362 Control Systems II

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Further methods applied to the analysis and design of feedback control systems. Root locus analysis. State space analysis of linear systems. Design and compensation techniques. Introduction to non linear systems and techniques of analysis. Liapunov stability analysis. Introduction to optimal control theory.

PRESCRIBED TEXTBOOK

Ogata, K. *Modern Control Engineering*. Prentice-Hall.

REFERENCE BOOKS

De Russo, P. M. et *al. State Variables for Engineers*. Wiley.
Gupta, S. C. & Hasdorf, L. *Fundamentals of Automatic Control*. Wiley.
Kuo, B. C. *Automatic Control Engineering*. Prentice-Hall.

MECH 353 Experimental Engineering II

Second session subject, 4 credit points

(1 hr lectures; 2 hrs laboratory)

Examination

No formal examinations. Assessment will be based on laboratory reports all of which are compulsory.

Syllabus Summary

Testing of reciprocating and rotodynamic machine; refrigeration plant, nozzles; heat exchangers.

REFERENCE BOOKS

To be advised during course.

MECH 332 Fluid Mechanics II

First session subject, 4 credit points

(28 hrs lectures; 14 hrs tutorials)

Examination

One 2 hour examination at the end of the course. Other short examinations and tutorial performances will be incorporated in the final assessment.

Syllabus Summary

Dimensional analysis. Dynamic similarity. Modelling. Boundary layer theory. Dynamic drag and lift. Flow of real fluids in ducts. Pipe networks. Theory of turbomachinery. Performance characteristics.

PRESCRIBED TEXTBOOK

Olson, R. M. *Engineering Fluid Mechanics*. International.

REFERENCE BOOK

Shepherd, D. G. *Elements of Fluid Mechanics*. Harcourt Brace & World.

MECH 333 Fluid Mechanics IIIA

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

One dimensional compressible fluid flow. Isentropic variable area flow. Nozzles and diffusers. Normal and oblique shocks. Effects of friction and heat transfer. Shapiro-Hawthorne generalized analysis. Boundary layer theory. Equations of motion. Exact solutions for laminar flow. Turbulent flow and parameters. Universal velocity distribution. Resistance formulae for ducts. Boundary layers with pressure gradient. Separation and vortex formation. Boundary layer control. Drag and pressure distribution relationships for bluff bodies.

REFERENCE BOOKS

Schlichting, H. & Kestin, J. *Boundary Layer Theory*. McGraw-Hill.
Shapiro, A. H. *The Dynamics and Thermodynamics of Compressible Fluid Flow*. Vol. 1. Ronald.

MECH 344 Heat Transfer

Second session subject, 4 credit points
(2 hrs lectures; 1 hr tutorials)

Examination
One two-hour paper at end of course.

Syllabus Summary
One and two-dimensional steady state conduction: free and forced convection; radiation; combined heat transfer mechanics and applications.

PRESCRIBED TEXTBOOK
Holman, J. P. *Heat Transfer*. 2nd ed. McGraw-Hill.

REFERENCE BOOKS
Chapman, A. J. *Heat Transfer*. 2nd ed. Macmillan.
Kreith, F. *Principles of Heat Transfer*. 2nd ed. International.

MECH 342 Thermodynamics II

First session subject, 4 credit points
(2 hrs lectures; 1 hr tutorials)

Examination
One two-hour paper at end of course.

Syllabus Summary
Equations of state. Property relations. Gas mixtures. Compressibility charts. Psychometry. Vapour and gas power cycles. Heat pumps and refrigerators. Rotodynamic machines.

PRESCRIBED TEXTBOOKS
Reynolds, W. C. *Thermodynamics*. 2nd ed. McGraw-Hill.
or
Wark, K. *Thermodynamics*. 2nd ed. McGraw-Hill.

REFERENCE BOOKS
Jones, J. B. & Hawkins, G. A. *Engineering Thermodynamics*. Wiley.
Shepherd, D. *Introduction to the Gas Turbine*. 2nd ed. Van Nostrand.
Sonntag, R. E. & Van Wylen, G. J. *Introduction to Thermodynamics*. Wiley.

MECH 325 Machine Dynamics

First session subject, 4 credit points
(2 hrs lectures; 1 hr tutorials)

Examination
One two-hour paper at end of course.

Syllabus Summary
Dynamics of simple mechanisms. Kinematics of involute gears. Balancing of rotors. Plane cam mechanisms.

PRESCRIBED TEXTBOOK
Hirschhorn, J. *Dynamics of Machinery*. Nelson.

REFERENCE BOOKS

Beer, F. P. & Johnston, E. R. *Vector Mechanics for Engineers—Dynamics*. McGraw-Hill.
Hirschhorn, J. *Kinematics and Dynamics of Plane Mechanisms*. McGraw-Hill.
Holowenko, A. R. *Dynamics of Machinery*. Wiley.
Mabie, H. H. & Ocvirk, F. W. *Mechanisms and Dynamics of Machinery*. Wiley.

MECH 363 Systems Analysis I

Second session subject, 4 credit points

(28 hrs lectures; 14 hrs tutorials)

Examination

One 2 hour examination at the end of the course. Other short examinations and tutorial performances will be incorporated in the final assessment.

Syllabus Summary

Linear programming; network analysis; dynamic programming; queueing theory.

PRESCRIBED TEXTBOOK

Hillier, F. S. & Lieberman, G. J. *Introduction to Operations Research*. Holden-Day.

REFERENCE BOOKS

Riggs, J. L. *Economic Decision Models*. McGraw-Hill.
Rosenbrock, H. & Storey, S. *Computational Techniques for Chemical Engineers*. Pergamon.
Wagner, H. M. *Principles of Operations Research*. Prentice-Hall.

400-level

MECH 423 Applied Dynamics I

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Kinematics of particles and rigid bodies in three dimensions. Three dimensional dynamics of rigid bodies; inertia tensor; Euler's equations of motion. Relativistic dynamics. Dynamic analysis of mechanisms.

PRESCRIBED TEXTBOOKS

Hirschhorn, J. *Kinematics and Dynamics of Plane Mechanisms*. McGraw-Hill.
Huang, T. C. *Engineering Mechanics-Dynamics*. Addison-Wesley.

REFERENCE BOOKS

Holowenko, A. R. *Dynamics of Machinery*. Wiley.

Housner, G. W. & Hudson, D. E. *Applied Mechanics, Dynamics.* Van Nostrand.
Mable, H. H. & Ocvirk, F. W. *Mechanisms and Dynamics of Machinery.* Wiley.
McCuskey, S. W. *Introduction to Advanced Dynamics.* Addison-Wesley.
Smith, G. M. & Downey, G. L. *Advanced Dynamics for Engineers.* International.

MECH 424 Applied Dynamics II

Second session subject, 4 credit points
(2 hrs lectures; 1 hr tutorials)

Examination
One two-hour paper at end of course.

Syllabus Summary
Lagrangian Dynamics and Hamilton's Principle applied to particles and rigid bodies; holonomic and non holonomic constraints; dynamics of continuous systems; introduction to statistical mechanics.

PRESCRIBED TEXTBOOKS
To be advised.

REFERENCE BOOKS
Crandall, S. H. *et al. Dynamics of Mechanical and Electro-Mechanical Systems.* McGraw-Hill.
Housner, G. W. & Hudson, D. E. *Applied Mechanics, Dynamics.* Van Nostrand.
McCuskey, S. W. *Introduction to Advanced Dynamics.* Addison-Wesley.

MECH 434 Fluid Mechanics IV

Second session subject, 4 credit points
(2 hrs lectures; 1 hr tutorials)

Examination
One two-hour paper at end of course.

Syllabus Summary
Potential flow of incompressible fluids in two dimensions. Flow nets. Standard patterns of flow. Method of superposition. Conformal transformations in the complex plane. Introduction to two-dimensional flow of compressible fluids. Subsonic flow with small perturbations. Gothert's similarity law. Prandt-Glauert rule. Mach number effects. Thermodynamics of turbomachine processes. Stage efficiencies. Design considerations. Cavitation. Cascade mechanics. Thin airfoil theory.

REFERENCE BOOKS
Csanady, G. *Theory of Turbomachines.* McGraw-Hill.
Pao, R. H. F. *Fluid Dynamics.* Merrill.
Vallentine, H. R. *Applied Hydro-dynamics.* Butterworths.

MECH 471 Industrial Water Pollution Identification

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Uses of water in industry. Water sources, surface, ground, recycled. Water quality and its effects on process water suitability. Methods used for measuring water quality. Industrial contaminants and their identification. Legal requirements. Case studies of industrial water pollution identification.

REFERENCE BOOKS

Senate Select Committee on Water Pollution. *Water Pollution in Australia*. 1970.
American Public Health Association Inc. *Standard Methods for the Examination of Water and Wastewater*. 13th ed. 1971.
U.S. Federal Water Pollution Control Administration (1968). *"Water Quality Criteria"*. Report of the National Technical Advisory Committee to the Secretary of the Interior, Washington.
New South Wales Clean Waters Act, 1970, Regulations. Selected research papers.

MECH 472 Industrial Water Pollution Control

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Removal of industrial contaminants. Physical and physical/chemical unit operations. Treatment plant design and control. Water re-use. Costs and economics of supply and disposal. Case studies of industrial water pollution control.

REFERENCE BOOKS

Re-use of Water in Industry. Butterworth, London, 1963.
World Health Organisation (1973). *Re-use of Effluents; Methods of Waste Water Treatment and Health Safeguards*. Wld. Hlth. Org. Techn. Rep. Ser. No. 517.
Culp, R. L. & Culp, G. L. *Advanced Wastewater Treatment*. Van Nostrand Reinhold Company, New York, 1971.
Selected research papers.

MECH 473 Materials Handling Systems I

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour examination at end of course.

Syllabus Summary

Principles of granular mechanics; packings; flow patterns and properties; measurement of flow properties in relation to Hopper design; stress analysis of bulk solids and determination of Hopper configurations.

REFERENCE BOOKS

Brown, R. L. & Richards, J. C. *Principles of Powder Mechanics*. Pergamon.
Jenike, A. W. *Gravity Flow of Bulk Solids*. Bul. 108. Utah Engineering Experiment Station 1961.
Jenike, A. W. *Storage and Flow of Solids*. Bul. 123. Utah Engineering Experiment Station 1964.
Mohsenin, N. N. *Physical Properties of Plant and Animal Materials*. Gordon Breach.

MECH 474 Materials Handling Systems II

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Design and performance of conveyor systems; forced and free flow of granular materials. Two phase flow; system identification and optimization applied to bulk handling systems.

REFERENCE BOOKS

Selected research papers.

MECH 416 Mechanical Engineering Design

First session subject, 4 credit points

(1 hr lectures; 2 hrs tutorials)

Examination

No formal examination. Assessment will be based on drawing office assignments.

Syllabus Summary

Design of process and industrial machinery with reference to internal combustion engines, turbo-machines, air pollution control equipment, heat transfer apparatus, etc. Review of operational and safety requirements; principles of optimization and system synthesis.

PRESCRIBED TEXTBOOKS

To be advised during course, depending on projects undertaken.

REFERENCE BOOKS

To be advised during course, depending on projects undertaken.

MECH 415 Optimum Design

Second session subject, 4 credit points

(1 hr lecture; 2 hrs tutorials)

Examination

No formal examination. Assessment will be based on drawing office assignments.

Syllabus Summary

The use of computers for mechanical engineering design. Optimization techniques and their application to selected machine elements. Case studies and assignments to exemplify the principles of optimum design.

REFERENCE BOOK

Johnson, R. C. *Optimum Design of Mechanical Elements*. Wiley.

MECH 475 Nuclear Power Technology I

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Nuclear processes, fission and energy deposition, nuclear reaction rates, fuel cycles and nuclear reactor types. Primary and secondary radiation sources multiplication slowing down and diffusion of neutrons, criticality conditions and reactivity changes with burnup. Fine scale flux in fuel point reactor neutron kinetics, and reactor control.

REFERENCE BOOKS

To be advised during course.

MECH 476 Nuclear Power Technology II

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Heat conduction, transfer and transport in canned reactor fuel elements and reactor coolant channels. Gas, non-metallic fluid and liquid metal cooling. Boiling, two phase flow and burnout problem. Void, temperature and fission product power reactivity feedback mechanisms. Thermo-mechanical aspects of reactor core performance. The thermodynamics of nuclear power systems. The spectal nuclear, thermal and cost characteristics of gas cooled, pressurized water, boiling water and liquid metal fast reactor systems. Isotopic power generators, process heat and other reactor applications.

REFERENCE BOOKS

To be advised during course.

MECH 464 Systems Analysis II

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

System optimization; variational methods; random data analysis; signal theory; stochastic processes.

REFERENCE BOOKS

To be advised during course.

MECH 465 Systems Analysis III

Second session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Classical and frequency domain solution of lumped, varying and distributed systems. Difference equations—classical solution; application of Z-transforms. Application of complex variable theory to the solution of engineering problems—conformal mapping. Phase plane analysis. Further state variable analysis and numerical methods applied to the solution of state equations.

PRESCRIBED TEXTBOOK

Wiley, C. R. *Advanced Engineering Mathematics*. McGraw-Hill.

REFERENCE BOOKS

De Russo, P. M. *et al. State Variables for Engineers*. Wiley.
Jury, E. I. *Theory and Practice of the Z-Transform*. Wiley.
MacFarlane, A. J. G. *Engineering Systems Analysis*. Addison-Wesley.
Pipes, L. A. *Matrix Methods for Engineering*. Prentice-Hall.

MECH 443 Thermodynamics III

First session subject, 4 credit points

(2 hrs lectures; 1 hr tutorials)

Examination

One two-hour paper at end of course.

Syllabus Summary

Property relations-Jacobians. Thermographics. Availability and irreversibility. Statistical thermodynamics; Maxwell-Boltzman, Fermi-Dirac and Bose-Einstein statistics; partition function and relation to macroscopic properties of ideal gases. Irreversible processes; coupled flows and phenomenological relations; Thermomechanical and thermoelectric effects. Combustion and thermio-chemistry. Chemical equilibrium.

REFERENCE BOOKS

Badger, P. H. *Equilibrium Thermodynamics*. Allyn & Bacon.
Crawford, F. H. & Van Vorst, W. D. *Thermodynamics for Engineers*. Harcourt Brace & World.
Kestin, J. A. *Course in Thermodynamics. Vol. 1 & 2*. Blaisdell.
Sonntag, R. E. & Van Wylen, G. J. *Fundamentals of Statistical Thermodynamics*. Wiley.
Tribus, M. *Thermostatics and Thermodynamics*. Van Nostrand.
Wark, K. *Thermodynamics*. McGraw-Hill.

MECH 401 Thesis

Double session subject, 20 credit points

Examination

Assessment of a submitted written thesis.

Syllabus Summary

During the final year of study for the Bachelor of Engineering Degree, each student is required to prepare a thesis on a subject or topic approved by the Chairman of the Department. Two bound copies of the completed thesis must be lodged with the Chairman of the Department by the due date posted.

The subject of a thesis may cover:—

(a) a report of original work performed by the student in the laboratory or field;

(b) a theoretical and experimental investigation of a Mechanical Engineering problem;

(c) a set of drawings and calculations covering a Mechanical Engineering design.

The aim of the thesis is for the student to learn how to examine published and experimental data, set objectives, organize a program of work, and analyze results and evaluate these in relation to existing knowledge. The thesis will be judged on the extent and quality of the students' work, and particularly how critical, perceptive and constructive they have been in assessing their own work and the work of others.

Students anticipating an Honours Degree are required to show facility in original and critical thought. Although sufficient time is allowed in their final year, part time students are recommended to commence their thesis at the end of Stage V and then attend the University full time for a period of three weeks during January, February or June of their final year.

METALLURGY

I. METALLURGY COURSE FOR STUDENTS ENROLLED PRIOR TO 1976

The Metallurgy course for students enrolled prior to 1976 is listed in Schedule D, Bachelor Degree Requirements. Details of subjects offered by departments other than the Department of Metallurgy may be found in the Description of Subjects for those departments. Students requiring further information about the Metallurgy subjects described below are advised to contact the Department of Metallurgy.

200-level

METL 200 Metallurgy I

Double session subject, 20 credit points

Physical Properties of Crystals I and II
Phase Equilibria
Optical Metallography
Structure of Alloys I
Introduction to Mechanical Metallurgy
Shaping Processes and Testing
Fluid Flow I and II
Thermodynamics I
Extraction Processes I and II
Metallurgy Laboratory/Tutorial

TEXTBOOKS

Barrett, C. S. & Massalski, T. B. *Structure of Metals*. 3rd ed. McGraw-Hill.
Chadwick, G. *Metallography of Phase Transformations*. Butterworths.
Darken, L. S. & Gurry, R. W. *Physical Chemistry of Metals and Alloys*. McGraw-Hill.
Dennis, W. H. *Extractive Metallurgy*. Pitman.
Dieter, G. E. *Mechanical Metallurgy*. McGraw-Hill.
Foust, A. S. *et al. Principles of Unit Operations*. Wiley.
Reed-Hill, R. E. *Physical Metallurgy Principles*. Van Nostrand.
Szekely, J. & Themelis, N. J. *Rate Phenomena in Process Metallurgy*. Wiley.
Wulff, J. ed. *The Structure and Properties of Materials*. Vols. 1 & 2. Wiley.

300-level

METL 300 Metallurgy II

Essentially Metallurgy IIA and IIB subjects (see below) combined, but excluding Extraction Processes IV.

METL 310 Metallurgy IIA

Double session subject, 20 credit points

Physical Properties of Crystals III
Kinetics
Structure of Alloys II
Elasticity
Structure and Mechanical Properties I
Thermodynamics II and III

Mineral Dressing I and II
Refractories
Metallurgy Laboratory/Tutorial

TEXTBOOKS

As for Metallurgy I, together with:
Burke, J. *The Kinetics of Phase Transformations in Metals*. Pergamon.
Fine, M. E. *Phase Transformations in Condensed Systems*. Macmillan.
Honeycombe, R. W. K. *Plastic Deformation of Metals*. Arnold.
Hull, D. *Introduction to Dislocations*. Pergamon.
Swalin, R. A. *Thermodynamics of Solids*. Wiley.

METL 320 Metallurgy IIB

Double session subject, 20 credit points

Mechanisms of Phase Transformations
Structure of Alloys III
Structure and Mechanical Properties II
Metal Joining
Fracture
Heat Transfer I and II
Mass Transfer I and II
Extraction Processes III
Seminar
Metallurgy Laboratory/Tutorial

TEXTBOOKS

As for Metallurgy IIA.

400-level

METL 410 Metallurgy III

Double session subject, 25 credit points

Core Subjects

Interfaces
Structure of Alloys IV
Structure and Mechanical Properties III
Plasticity and Metal Shaping
Reaction Engineering
Refining
Extraction Processes IV and V
Metallurgy Laboratory/Tutorial

Option Units (3 to be taken)

Crystallography of Phase Transformations
Advanced Mechanical Metallurgy
Solidification

Note: further option units will be offered as facilities permit.

TEXTBOOKS

As for Metallurgy I and II, together with:
Bodsworth, C. *Physical Chemistry of Iron & Steel Manufacture*. Longmans.
Lamble, J. E. ed. *Principles and Practice of Non-Destructive Testing*. Haywood & Co.
Levenspiel, O. *Chemical Reaction Engineering*. Wiley.

METL 420 Metallurgy Project

Double session subject, 15 credit points

II. METALLURGY COURSE FOR NEW STUDENTS ENROLLING IN AND AFTER 1976

100-level

METL 121 Nature of Materials

Second session subject, 6 credit points

Pre-req. –

Plane patterns, plane lattices, unit cells, symmetry, geometrical properties.

Three dimensional patterns, space lattices, macroscopic and microscopic symmetry, unit cell, crystal classifications, Bravais lattices, geometrical properties.

Crystals, structure of crystals, elements, compounds, solid solutions, ordering.

Defects in crystals, lattice properties—thermal, electrical, magnetic, optical.

Bonding in solids, liquids and gases.

Non-crystalline materials, structures of polymers, glasses, liquids, relationship with properties.

Crystals and polycrystals, microstructures, genesis of structure, relationship with properties.

Observation of structure, resolution of microscopical techniques, X-ray diffraction, Bragg Law, geometrical theory, determination of crystal structure.

TEXTBOOK

Wulff, J. ed. *Structure & Properties of Materials*. Vol. I.

200-level

METL 211 Thermodynamics I

First session subject, 3 credit points

Pre-req. Chemistry I

Definitions. First, second and third law. Auxiliary functions. Experimental methods and calculations. Elementary thermodynamics in metallurgy, particularly metal extraction and refining: uses and limitations.

TEXTBOOK

Gaskell, R. D. *Introduction to Metallurgical Thermodynamics*.

METL 231 Mechanics of Solids I

Second session subject, 4 credit points

Pre-req. –

Resolution of stress and strain, complex stress, Poisson contraction, strain energy, yield criteria, stress concentration; surface energy, stress concentration and plastic work, approaches to fracture.

METL 241 Fluid Flow

Second session subject, 4 credit points

Pre-req. Mathematics I

Introduction to fluid flow. Viscosity. Analytical and energy balance approaches to flow in pipes, ducts, etc. Reynolds' expt., dimensional analysis. Flow meters. Flow of solids through fluids. Form drag and drag coefficients. Flow through packed beds, fluidization.

TEXTBOOK

Geiger, G. & Poirier, D. *"Transport Phenomena in Metallurgy"*.

METL 251 Structure of Metals 1

Double session subject, 6 credit points

Pre-req. Nature of Materials

Binary phase equilibrium diagrams; genesis of microstructure of one and two phase alloys; elementary transformation theory; transformations under non-equilibrium conditions; optical metallography; quantitative metallography, recovery, recrystallization and grain growth.

TEXTBOOKS

Wulff, J. ed. *"Structure and Properties of Materials"*. Vol. II.
Chadwick, G. *"Metallography of Phase Transformations"*.
Reed-Hill, R. *"Physical Metallurgy"*.

METL 252 Structure and Mechanical Properties 1

Second session subject, 3 credit points

Pre-req. Nature of Materials

Elementary ideas of stress and strain, general introduction to mechanical behaviour, structure dependence of mechanical properties, time and temperature sensitivity, elementary behaviour of dislocations, strain rate sensitivity, yield phenomena.

TEXTBOOKS

Gordon, J. E. *"The New Science of Strong Materials"*.
Honeycombe, R. *"Plastic deformation of Metals"*.

METL 271 Transformations 1

Second session subject, 3 credit points

Pre-req. Structure of Metals 1

Kinetics; diffusion; Ficks laws; mechanisms of nucleation and interface propagation in solids; recrystallization and grain growth.

TEXTBOOKS

Chadwick, G. *Metallography of Phase Transformations.*
Reed-Hill, R. *Physical Metallurgy.*
Barrett, C. & Massalski, T. *Structure of Metals.*

METL 281 Extractive Metallurgy

Second session subject, 4 credit points

Pre-req. Thermodynamics 1

Ferrous extraction and refining. Burden materials and preparation, blast furnace reactions. Steelmaking processes, ingot structures. Vacuum processes and continuous casting.

Occurrence, extraction principles and a survey of common extraction processes of some non-ferrous metals, e.g. Cu, Pb, Zn, Al, Ni, Au, etc.

Review of homogeneous kinetics and introduction to heterogeneous kinetics. Interpretation of constant volume and variable volume kinetic data. Temperature and pressure effects of reaction rates. Single ideal reactors—bath and flow type. Multiple reactor systems—series, parallel and mixed. Applications.

TEXTBOOKS

Rosenqvist, T. *Principles of Extractive Metallurgy.*
Levenspiel, O. *Chemical Reaction Engineering.*

300-level

METL 301 Ceramics

First session subject, 2 credit points

Pre-req. Thermodynamics 1, Nature of Materials, and Structure of Metals 1

Crystal structures of oxides and silicates. Noncrystalline phases. Phase equilibria in ceramic systems. Structural changes during processing and in service. Properties and their control.

Classification of refractories. Significant properties and service behaviour. Testing.

METL 311 Thermodynamics 2

First session subject, 3 credit points

Pre-req. Thermodynamics 1

Solution thermodynamics. Relative partial and integral quantities and their inter-relationships in binary solutions. Methods of measurement and calculations; applications and limitations. Multicomponent solutions, interaction coefficients, change of standard states. Thermodynamics of phase equilibria.

TEXTBOOK

Gaskell, R. D. *Introduction to Metallurgical Thermodynamics.*

METL 312 Electrochemical Processes

First session subject, 3 credit points

Pre-req. Thermodynamics 1

Aqueous corrosion: chemistry, thermodynamics and kinetics. Influence of external factors. Corrosion prevention. Electropolishing, deposition, anodizing.

Dry corrosion: gas-metal reactions. Oxide scales—formation and properties. Protection.

Hydrometallurgy: general review of processes. Solution equilibria, thermodynamics and kinetics. Leaching, separation and recovery. Representative examples of common processes.

TEXTBOOK

Wranglen, G. *An Introduction to the Corrosion and Protection of Metals.*

METL 321 Physics of Metals 1

Second session subject, 3 credit points

Pre-req. Nature of Materials

Electrons in solids; zone and band theory; conductivity and magnetism; electron/crystal interactions; X-ray diffraction; electron diffraction and transmission microscopy, scanning electron microscopy, electron probe microanalysis, field ion microscopy, field emission microscopy, etc.

TEXTBOOKS

Barrett, C. & Massalski, T. *Structure of Metals.*
Wulff, J. ed. *Structure and Properties of Materials.* Vol. IV.

METL 331 Mechanics of Solids 2

First session subject, 3 credit points

Pre-req. Mechanics of Solids 1

Plastic flow, complex strain, plastic instability, analysis of shaping processes by work evaluation, by force equilibrium and by shear line field methods, friction effects, applications to common deformation conditions.

METL 341 Mass Transfer

Second session subject, 3 credit points

Pre-req. Fluid Flow

Review of diffusion and Fick's Law. Mass transfer in fluid systems. Molecular and eddy diffusivity. Two-film and penetration theories. The mass transfer coefficients. Exact solutions. Correlations of mass transfer coefficients for turbulent flow. Analogy with heat transfer. Equations for special cases of mass transfer with convection.

TEXTBOOKS

Geiger, G. & Poirier, D. *Transport Phenomena in Metallurgy.*
Levenspiel, O. *Chemical Reaction Engineering.*

METL 342 Heat Transfer

First session subject, 3 credit points

Pre-req. Fluid Flow

Steady-state conduction, resistance concept. Convection, heat transfer coefficients and correlations, heat exchangers. Radiation. Unsteady-state conduction. Analytical, graphing and finite difference solutions. Analogues. Quenching and solidification heat transfer.

TEXTBOOK

Geiger, G. & Poirier, D. *Transport Phenomena in Metallurgy.*

METL 351 Structure of Metals 2

Double session subject, 6 credit points

Pre-req. Structure of Metals 1

Heat treatment, microstructure and properties of plain carbon steels and cast iron: ternary phase equilibria; ternary phase diagrams; structure and properties of alloy steels; hardenability; engineering applications and failure analysis.

TEXTBOOK

Reed-Hill, R. *Physical Metallurgy.*

METL 352 Industrial Metallurgy

Double session subject, 6 credit points

Pre-req. Structure of Metals 2, Transformations 1, Structure & Mechanical Properties 1, and Mechanics of Solids 2

Lectures, tutorials and practical work on topics such as rolling, founding, welding, abrasion, electroforming, sintering, testing, specifications, machining, corrosion protection.

TEXTBOOK

Rowe, G. *Principles of Metal Working.*

METL 353 Thermomechanical Processing

First session subject, 3 credit points

Pre-req. Structure of Metals 2, Transformations 1

Theory of phase transformations in steel; strengthening of ferrous and non-ferrous alloys; relationships between strength toughness and microstructures produced by thermomechanical treatments; strength and ductility at elevated temperatures.

METL 361 Reaction Engineering 1

Second session subject, 3 credit points

Pre-req. Extractive Metallurgy, Fluid Flow

Fundamental consideration of reactor performance for multiple reactions.

Temperature and pressure effects on reactor yield. Isothermal and adiabatic reactors. Non-ideal flow. RTD flow models. Reactor yield with non-ideal flow. Applications.

TEXTBOOK

Levenspiel, O. *Chemical Reaction Engineering.*

METL 381 Extraction Engineering

Second session subject, 4 credit points

Pre-req. Heat Transfer, Mass Transfer, Extractive Metallurgy, Thermodynamics 2, and Reaction Engineering 1

Discussion of selected topics to illustrate particular application of metallurgical engineering principles of fluid flow, heat and mass transfer, thermodynamics and reaction engineering to such topics as the development of a heat transfer model of continuous casting using analog and digital computer simulation; the development of slag theories and their application in extraction; reaction engineering of iron ore reduction in direct reduction processes and blast furnaces; the application of fluid flow theory to investigate jets, nozzles, tuyeres.

METL 391 Metallurgy Project 1

Second session subject, 5 credit points

Co-req. Metallurgy subjects of Stage VI or Year 3

A literature survey and experimental work on some aspect of metallurgy.

*400-level**

METL 421 Physics of Metals 2

3 credit points

Pre-req. Physics of Metals 1

Advanced geometrical, kinematical and dynamical electron and X-ray diffraction theory; reciprocal lattice, sterographic projection.

METL 431 Fracture

3 credit points

Pre-req. Mechanics of Solids 2, Structure & Mechanical Properties 1

Plastic constraint, fracture mechanics for conditions of plane stress and strain and of general yielding, C.O.D. testing, fatigue, stress corrosion, mechanisms of crack nucleation and propagation.

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* A selection of 400-level subjects is to be selected in consultation with the Chairman of the Department of Metallurgy. Some of the 400-level subjects listed may not be available in 1976.

METL 451 Structure of Metals 3

3 credit points

Pre-req. Structure of Metals 2

Strengthening of ferrous and non-ferrous alloys; relationships between strength, toughness and microstructure; thermomechanical treatments, ausforming, isoforming, austempering, martempering, maraging, etc.; high performance alloys.

METL 452 Structure & Mechanical Properties 2

4 credit points

Pre-req. Mechanics of Solids 1, Structure & Mechanical Properties 1, and Physics of Metals 1

Relationships among elastic constants for isotropic continua, generalised Hooke's law, yield surface for anisotropic materials, development of preferred orientations, elastic properties of dislocations, dislocation interactions and reactions, strain hardening.

METL 453 Structure & Mechanical Properties 3

3 credit points

Pre-req. Structure of Metals 2

Hot deformation processes; creep; superplasticity; high temperature fracture; dynamic recovery and recrystallization.

METL 461 Reaction Engineering 2

3 credit points

Pre-req. Reaction Engineering 1, Mass Transfer

Mixing and segregation. Effect on yield. Design for heterogeneous reacting systems. Fluid-solid systems. Reaction and mass transfer control. Single and multiple particle systems. Fluid-fluid systems. Pure mass transfer. Mass transfer with chemical reaction. Rate expressions for various kinetic regimes. Design strategy for single and multiple reactors. Applications.

METL 471 Transformations 2

3 credit points

Pre-req. Structure of Metals 2, Transformations 1

Theory of transformation of autenite to pearlite, bainite and martensite; tempering; transformation diagrams.

METL 472 Solidification

4 credit points

Pre-req. Structure of Metals 1, Heat Transfer, and Mass Transfer

Nucleation. Growth structures in pure metals, single and polyphase alloys. Cast structure development and control. Grain refinement and modification. Segregation. Thermodynamics and fluid flow in solidification. Processing and properties.

METL 481 Mineral Engineering

First session subject, 4 credit points

Pre-req. Fluid Flow, Extractive Metallurgy

Mineralogy of ore minerals. Liberation. Size analysis and distribution. Comminution. HMS separation. Magnetic and electrostatic separation. Flowing film separation. Froth flotation, filtering and drying. Analysis of the processing of minerals including coal for use in the extraction of selected metals.

METL 482 Iron and Steel Making

3 credit points

Pre-req. Thermodynamics 2, Fluid Flow, Heat Transfer, and Mass Transfer

Reduction of iron oxides in the shaft. Thermodynamic and kinetic aspects. Analysis of the blast furnace as a counter-current reactor. Rist's diagrams. Calculation of heat and oxygen balances in the production zone. Departure from non-ideality resulting from increased driving rates. Role of injectants in the blast furnace process. Steelmaking. Structure of slags, slag theories, acidity and basicity. Steelmaking reactions—C. S. & P. removal. Processes—conventional and oxygen processes. Non-equilibrium conditions.

METL 491 Metallurgy Project 2

18 credit points

Pre-req. Metallurgy Project 1

A literature survey and experimental work on some aspect of metallurgy.

PHILOSOPHY

PHIL 103 Philosophy 103

Double session subject, 12 credit points

(4 contact hrs per week throughout the year)

Assessment: 60%—3 hr examination paper at the end of session 2; 20% —2 essays (2,000 words each); 20%—tutors' assessment.

General Description

Philosophy studies those problems which cannot be solved by the methods of the natural sciences; i.e. which cannot be solved by carrying out a physical experiment, making an observation, or doing a mathematical calculation. Examples of these non-scientific but nonetheless real problems are (1) Is there a God beyond the physical world? (2) Do moral distinctions rest on objective foundations or are good and bad matters of subjective preference? (3) How should I relate to other individuals and to institutions such as the state? (4) Am I a purely material being or does my having a mind set me apart from nature? (5) Is free will a reality or an illusion? and (6) the nature of truth and the methods by which it can be approached. The two main reasons for studying philosophy are firstly to attempt to formulate and justify one's own solutions to these and many other problems (and to find out and understand what others have said), and secondly to unearth and critically examine the many unstated assumptions implicit in our everyday thought and conduct. The study of philosophy does not depend upon any discipline or body of information acquired in secondary education. It will be offered at the University of Wollongong from 1976.

The first session is concerned mainly with questions of metaphysics (theory of being) and epistemology (theory of knowledge). The issues considered include (i) what, if anything, can be known with certainty (ii) the nature of the human person (iii) the relation between the mind and the body (iv) attempts to prove (or refute) the existence of God (v) human imperfection, and (vi) our knowledge of the external world. The *Meditations* of Rene Descartes will be given special attention in relation to these issues.

The second session is concerned mainly with questions of moral and political philosophy. The issues considered include (i) the degree to which I am responsible for what I become (ii) self-discovery, self-deception, and self-modification (iii) criteria for a moral stance (iv) legal constraint and personal liberty (v) welfareism versus libertarianism, and (vi) the relations between law and morality. Jean-Paul Sartre's *Existentialism is a Humanism* and John Stuart Mill's *On Liberty* will be given special attention.

Throughout the year one class a week will be devoted to logic. Issues considered include (i) reason and feeling (ii) the nature of truth, and (iii) supporting a conclusion. Under (iii) consideration will be given to (a) the distinctions between demonstrative and non-demonstrative arguments, and (b) formalization of arguments and assessing validity. No mathematical or technical knowledge of any sort is presupposed.

TEXTBOOKS

Anscombe, Elizabeth & Geach, P. T. eds. *Descartes's Philosophical Writings*. London, Nelson, 1954.

Kaufmann, W. ed. *Existentialism from Dostoevsky to Sartre*. New York, Meridian, 1956.

Lemmon, E. J. *Beginning Logic*. London, Nelson, 1965.

Mill, J. S. *On Liberty (and other essays)*. London, O.U.P., 1912 (or any other edition).

REFERENCE BOOKS

Devlin, Patrick. *The Enforcement of Morals*. London, O.U.P., 1965.
Doney, Willis, ed. *Descartes: A Collection of Critical Studies*. New York, Anchor, 1967.
Hart, H. L. A. *Law, Liberty, and Morality*. London, O.U.P., 1963.
Kenny, Anthony. *Descartes: A Study of His Philosophy*. New York, Random House, 1968.

PHYSICS

100-level

PHYS 141 Fundamentals of Physics A

Double session subject, 6 credit points

(42 hrs lectures, 14 hrs tutorials and 28 hrs practical)

Pre-req. –

Co-req. MATH 101 Mathematics 1A

Assessment: Tests, essay, laboratory and examinations

Students are advised to contact the Department for details of this subject.

PRESCRIBED TEXTBOOKS

For students taking both PHYS 141 and PHYS 142:
Resnick, R. & Halliday, D. *Physics*. Wiley, combined edition (Paperback).

For students taking only PHYS 141:
Resnick, R. & Hallidav, D. *Physics*. Vol. 1. Wiley (Paperback).

RECOMMENDED REFERENCE

Marion, J. B. *A Universe of Physics; A Book of Readings*. Wiley (Paperback).

PHYS 142 Fundamentals of Physics B

Double session subject, 6 credit points

Pre-req., Co-req. & Assessment: The same as for PHYS 141

Students are advised to contact the Department for details of this subject.

PRESCRIBED TEXTBOOK

For students taking only PHYS 142.
Resnick, R. & Halliday, D. *Physics*. Vol. 2. Wiley (Paperback).

RECOMMENDED REFERENCE

As for PHYS 141.

PHYS 151 The Art of Physics

Second session subject, 6 credit points

(28 hrs lectures, 14 hrs tutorials, 14 hrs laboratory, essays)

(Not to count with PHYS 141 or PHYS 142)

Pre-req. –

Assessment: Continuous assessment based on class work, including quizzes, take-home examinations and essays

PRESCRIBED TEXTBOOKS

Ballif, J. & Dibble, W. *Physics: Fundamentals and Frontiers*. Wiley, 1972.
Nicolson, I. *Astronomy*. Bantam, 1972 (Paperback).

RECOMMENDED REFERENCE

Marion, J. B. *A Universe of Physics; A Book of Readings*. Wiley, 1970.

200-level

PHYS 210 Experimental Physics A

First session subject, 2 credit points

(4 hrs laboratory)

Errors; Direct Reading Potentiometer; E.M.F. of Thermo-Couples by Potentiometric Method; Sensitivity of the Galvanometer; Use of the Ballistic Galvanometer; Measurement of the Magnetization of Iron; Velocity of Sound in Air by Stationary Waves; Determination of C_p/C_v for Air; Variation of Boiling Point with Pressure; Thermal Conductivity of a Bad Conductor and Glass Tubing; Experiments on Polarized Light; Microwave Optics.

PHYS 260 Experimental Physics B

Second session subject, 2 credit points

(4 hrs laboratory)

Photo-Electric Effect; Spectrum of Hydrogen Atom; Determination of e/m; A.C. circuits; Measurement of Mutual Inductance; Electric Circuits; Newton's Rings; Fresnel Bi-Prism; Diffraction Grating Resolving Power of Telescope.

PHYS 230 Electromagnetism

First session subject, 3 credit points

(28 hrs lectures)

Vector Calculus; Electrostatic fields; Potential Energy; Potential and Capacitance; Dielectric Media; Direct Currents; Currents and the Magnetic Field; Faraday's Law; The Magnetic Behaviour of Matter; Transient Oscillations and Alternating Currents; Maxwell's Field Equations; Filters and Transmission Lines; Relativity and Electromagnetism.

PRESCRIBED TEXTBOOK

Reitz, J. R. & Milford, F. J. *Foundations of Electromagnetic Theory.* Addison-Wesley.

PHYS 242 Modern Physics

Double session subject, 4 credit points

(42 hrs lectures)

Special Theory of Relativity; Black Body Radiation; Photoelectric Effect; Bremstrahlung; The Compton Effect; Rutherford Scattering; The Bohr Model; X-Ray and Electron Diffraction; Quantum Mechanics; Wave Nature of Particles, De Broglie Waves; Uncertainty Principle; Wave Packets; The Schrödinger Equation; Time Independent Schrödinger Equation; Some Applications of the Schrödinger Equation; General Properties of the Nucleus; Models of the Nucleus; Nuclear Reactions; Radioactivity; Fission and Fusion; Particle Detectors, Elementary Particles; A general discussion about Crystals; Fermi-Dirac Distribution; Metals; Band Theory; Semi-Conductors.

PRESCRIBED TEXTBOOK

Acosta, V., Cowan, L. & Graham, B. J. *Essentials of Modern Physics.* Harper International Edition, Harper & Row, New York, 1973.

PHYS 245 Vibrations, Waves and Optics

Double session subject, 4 credit points

(42 hrs lectures)

Simple Harmonic Motion; Two Body Oscillations; Damped Harmonic Oscillator; Power Dissipation; Quality Factor; Driven Harmonic Oscillator; Superposition Principle; Superposition of Vibrations; Fourier Analysis; Waves; Qualitative Discussion; Huygen's Principle; Laws of Reflection and Refraction; Analytical Treatment of Wave Motion; Sinusoidal Waves; Group Velocity Dispersion; Young's Experiment; Interference; Coherence; Stokes' Treatment of Reflection and Refraction; Interference involving Multiple Reflections; Applications; Standing Waves; Fabry-Perot; Interferometer; Michelson Interferometer; Fourier Spectroscopy; Fresnel Diffraction; Fraunhofer Diffraction; Resolving Power of Optical Instruments; Chromatic Resolving Power; Diffraction Grating; Holography; Polarization of Waves; Double Refraction; Interference of Polarized Light.

PRESCRIBED TEXTBOOKS

French, A. P. *Vibrations and Waves*. W. W. Norton & Co. Inc., New York, 1971 (Paperback).
Jenkins, F. A. & White, H. E. *Fundamentals of Optics*. 3rd ed. McGraw-Hill, New York, 1957.

PHYS 247 Thermodynamics and Kinetic Theory

Double session subject, 3 credit points

(28 hrs lectures)

Thermodynamic Systems; Equations of State; Work, The First Law of Thermodynamics; Some Consequences of the First Law; Changes of Phase; The Second Law of Thermodynamics; Entropy; Combined First and Second Laws; Some Engineering Applications of Thermodynamics; Kinetic Theory of an Ideal Gas; The Distribution of Molecular Velocities; Transport Phenomena.

PRESCRIBED TEXTBOOK

Sears, F. W. *An Introduction to Thermodynamics, the Kinetic Theory of Gases and Statistical Mechanics*. Addison-Wesley.

PHYS 290 Mechanics

Second session subject, 3 credit points

(28 hrs lectures)

Vector Calculus; Kinematics of a Particle; Dynamics of a Particle; Moving Reference Systems; Central Forces; Dynamics of a System of Particles; Mechanics of Rigid Bodies; Lagrange's Equations.

PRESCRIBED TEXTBOOK

Fowles, G. R. *Analytical Mechanics*. Holt, Rinehart & Winston.

200/300-level

PHYS 648 Astronomy

Double session subject, 6 credit points

(42 hrs lectures and 28 hrs practical)

Deep-sea Navigation; The Celestial Sphere; Position Lines; The Computation of the Deep-Sea Position; Celestial Mechanics; Newton's Laws; Derivation of Kepler's Laws; Position and Motion in an Orbit; The Solar System; The Sun; Stellar Positions, Distances and Masses; Photometry and Spectroscopy; Stellar Spectral Classification; Nuclear Reactions in Stars; Formation of Elements; Hertzsprung-Russell Diagram; Equations of Stellar Structure; Stellar Evolution; Galactic and Extra-Galactic Astronomy; Structure of our Galaxy; Classification and Evolution of Galaxies; Exploding Galaxies, Quasars and Black Holes; Cosmology; Outstanding Problems.

PRESCRIBED TEXTBOOK

Smith, E. P. & Jacobs, K. C. *Introductory Astronomy and Astrophysics.* W. B. Saunders, Philadelphia, 1973.

300-level

PHYS 310 Advanced Experimental Physics

Double session subject, 6 credit points

(168 hrs laboratory)

Electronics used in physics experiments; Electrical Measurements; Power Supplies; Amplification by Vacuum Tubes and Transistors; Amplifier Circuits; Oscillators; Electronic Switching, Timing and Digital Counting Systems. Microwave Experiment; The Artificial Transmission Line; Measurement of e/m for an Electron; Millikan's Oildrop; Analogue Field Plotter; Michelson Interferometer; Attenuation of γ-rays; Positron Annihilation expt; Experiments on Solid State Physics; Statistical Analysis of the Counts from a Radioactive source, using G.M. Counter; Experiment on Vacuum Techniques; Frank-Hertz Experiment; Rutherford-scattering experiment; Mass Spectrometer.

PHYS 380 Electromagnetism

Second session subject, 3 credit points

(28 hrs lectures)

Review of Electromagnetism; Maxwell's Equations; Applications of Maxwell's Equations:—

(Boundary Conditions,
Reflection and Refraction at the Boundary of two non-conducting media,
Reflection from a Conducting Plane,
Propagation between parallel Conducting Plates,
Waveguides,
Cavity Resonators,
Radiation from an Oscillating dipole,
Radiation from a half wave antenna,
Radiation from a group of moving charges).
Electrodynamics (Lienard-Wiechert potentials,
The Field of a uniformly moving point charge,
Radiation from an accelerated point charge,
Radiation fields for small velocities).

PRESCRIBED TEXTBOOK

Reitz, J. R. & Milford, F. J. *Foundations of Electromagnetic Theory.* Addison-Wesley.

PHYS 340 Classical Mechanics

First session subject, 3 credit points

(28 hrs lectures)

Matrices and Vectors; The Special Theory of Relativity; Hamilton's Principle—Lagrangian and Hamiltonian Dynamics; Small Oscillations; Kinematics of Two-Particle Collisions; Motion in a Non-inertial Reference Frame; Dynamics of Rigid Bodies.

PRESCRIBED TEXTBOOK

Marion, J. B. *Classical Dynamics of Particles and Systems.* Academic Press International Edition (Paperback).

PHYS 392 Nuclear Physics

Second session subject, 3 credit points

(28 hrs lectures)

Basic Nuclear Concepts; Nuclear Structure; Interaction of Nuclear Radiation with Matter; Radioactive Decay; Nuclear Reactions; Nuclear Forces; Nuclear Models; Particle Detectors and Particle Accelerators.

PRESCRIBED TEXTBOOK

Meyerhof, Walter E. *Elements of Nuclear Physics.* McGraw-Hill, 1967.

PHYS 344 Quantum Mechanics

Double session subject, 6 credit points

(56 hrs lectures)

Postulates of Quantum Mechanics; The Hamiltonian Operator and Schrödinger Equation; Heisenberg's Principle of Indeterminacy; Momentum Representation; Schrödinger's Treatment of the Harmonic Oscillator; Matrix Treatment of Harmonic Oscillator; Angular Momentum; Time-Independent Perturbation Theory; Zeeman Effect in Hydrogen; Time-Dependent Perturbation Theory.

PRESCRIBED TEXTBOOK

Matthews, P. T. *Introduction to Quantum Mechanics.* 3rd ed. McGraw-Hill.

PHYS 346 Solid State Physics

First session subject, 3 credit points

(28 hrs lectures)

Symmetry Operations; The Lattice; Crystal Systems; Bravais Lattices; Crystal Structure; Miller Indices; The Reciprocal Lattice The Laue Equations; Bonding; Molecular Spectra; Lattice Vibrations; Monatomic Linear Chain; Generalization to Three Dimensions; Einstein's Theory of Specific Heat; The Free Electron Theory of Metals; Electrical Conductivity and Ohm's Law; Hall Effect; Electronic Specific Heat; Fermi-Dirac Statistics; The Band Theory of Solids; Nearly Free Electron Approximation; Extended and Reduced Zones; Metals, Insulators and Semi-Conductors; Tight Binding Approximation; Effective Mass; Bloch's Theorem; The Positive Hole; Semi-Conductors; Intrinsic Conductivity; Electron and Hole Concentrations.

PRESCRIBED TEXTBOOK

Kittel, C. *Introduction to Solid State Physics.* 4th ed. John Wiley, Sydney.

PHYS 347 Statistical Mechanics

Double session subject, 6 credit points

(56 hrs lectures)

Concepts of Quantum Statistical Mechanics; Sharp Distribution of Number of Stages of a Simple Model System; The Fundamental Assumption; Gibbs Ensemble; Systems in Thermal Contact; Entropy and Temperature; Second Law of Thermodynamics; Systems in Diffusive Contact; Chemical Potential; Gibbs and Boltzmann Factors and Partition Functions; Fluctuations; Partition function for Infinite Square Well; Pressure and the Thermodynamic Identity; Fermions, Bosons and their Distribution Functions; Classical Distribution; Monatomic Ideal Gas; Maxwell-Boltzmann Velocity Distribution; Kinetic Theory; Transport Processes; Fermi Gas in Metals; Planck Distribution for Photons; Phonons and Debye Theory; Boson Physics; Free Energy of Ideal Gas; Gibbs Free Energy; Grand Potential; Enthalpy; Equilibrium in Reactions.

PRESCRIBED TEXTBOOK

Kittel, C. *Thermal Physics*. John Wiley, New York, 1969.

PHYS 349 Astrophysics I

Double session subject, 3 credit points

(28 hrs lectures)

Determination of Stellar Magnitudes, Spectra, Masses, Radii and Luminosity; Relations between these Quantities; Chemical Composition and Population Type; Radiation Transfer; Spectral Lines and Absorption; Formation of Absorption Lines; Line Profiles and Strengths; The Differential Equations of Stellar Structure; Radiation and Convection; Calculation of Evolutionary Sequences; Protostars; The Main Sequence; Red-Giant Stage; Final Stages of Evolution.

PRESCRIBED TEXTBOOKS

Swihart, T. L. *Astrophysics and Stellar Astronomy*. John Wiley, New York, 1968.

Taylor, R. J. *The Stars: Their Structure and Evolution*. Wykeham, London, 1970 (Paperback).

400-level

Students are advised to contact the Department about the details of each of the 400-level subjects listed below.

PHYS 410 Honours Project

PHYS 430 Electromagnetism

PHYS 440 Classical Mechanics

PHYS 442 Nuclear Physics

PHYS 444 Quantum Mechanics

PHYS 446 Solid State Physics

PHYS 497 Statistical Mechanics

PHYS 499 Astrophysics II

PSYCHOLOGY

100-level

PSYC 101 Psychology 1A

First session subject, 6 credit points

(6 contact hrs: 4 lectures; 2 prac/demonstrations)

The subject will consist of four areas of study: research methods and statistical techniques (first part); psychobiology; development and social processes; and motivation and emotion (first part).

TEXTBOOKS

Hilgard, E. R., Atkinson, R. C. & Atkinson, R. L. *Introduction to Psychology* 6th ed. Harcourt, Brace; Jovanovich, Inc., New York, 1975.
Runyon, R. P. & Haber, A. *Fundamentals of behavioral statistics*. 3rd ed. Addison-Wesley, Massachusetts, 1975.
Runyon, R. P. & Haber, A. *Workbook to accompany Fundamentals of behavioral statistics*. Addison-Wesley, Massachusetts, 1975.

PSYC 102 Psychology 1B

Second session subject, 6 credit points

(6 contact hrs: 4 lectures; 2 prac/demonstrations)

Pre-req. PSYC 101 Psychology 1A

The four areas of study in this subject are: research methods and statistical techniques (second part); motivation and emotion (second part); learning and cognition; abnormal psychology and individual differences.

TEXTBOOKS

Hilgard, E. R., Atkinson, R. C. & Atkinson, R. L. *Introduction to Psychology*. 6th ed. Harcourt, Brace; Jovanovich, Inc., New York, 1975.
Runyon, R. P. & Haber, A. *Fundamentals of behavioral statistics*. 3rd ed. Addison-Wesley, Massachusetts, 1975.
Runyon, R. P. & Haber, A. *Workbook to accompany Fundamentals of behavioral statistics*. Addison-Wesley, Massachusetts, 1975.

200-level

PSYC 201 Personality Theory

First session subject, 4 credit points

(2 contact hrs: 2 lectures)

The purpose of this subject is to introduce the major theories of personality. Detailed critical analysis and comparison will be made of the principal paradigms—the psychoanalytic, the behaviourist and the existential, as well as the theories that have evolved from them, such as ego psychology, social learning theory and self theory. Some consideration will also be given to more empirically based theories such as those of the factor theorists.

TEXTBOOK

Hall, C. S. & Lindzey, G. *Theories of Personality*. Wiley, New York, 1970.

PSYC 202 Personality Laboratory

First session subject, 3 credit points

(2 contact hrs: 2 laboratories)

Co-req. PSYC 201 Personality Theory

The coursework will comprise group and individual class exercises and research projects based on the work covered in the Personality Theory course.

REFERENCES

To be advised.

PSYC 203 Psychological Measurement

First session subject, 2 credit points

(2 contact hrs: 1½ lectures; ½ tutorial)

Topics will include probability theory; regression and prediction; normal and binomial distributions; statistical inference with two independent samples; statistical inference with correlated samples; one-way analysis of variance; power of a test and types of errors; nonparametric tests with categorical and ordinally scaled variables (binomial test, chi-squared, Mann-Whitney U-test, Wilcoxon test).

TEXTBOOK

Runyon, R. P. & Haber, A. *Fundamentals of behavioral statistics*. 3rd ed. Addison-Wesley, Reading, Mass., 1975.

PSYC 207 Psychology of Development

First session subject, 3 credit points

(2 contact hrs: 2 lectures)

Consideration will be given to development throughout the life span, the theories and empirical work appropriate to this area. Some emphasis will be placed on the societal context in which development occurs, and the extent to which the theories and conclusions are culturally bound.

Topics will include maternal deprivation; the relevance of the nuclear family to development; cognitive theories and research; personality development; changes in social interaction. Students may specialise in either child development or ageing and should purchase the text appropriate to their choice.

TEXTBOOKS

Botwinick. *Ageing and Behaviour*. Springer, 1973.
or
Liebert, Poulos & Strauss. *Developmental Psychology*. Prentice-Hall, Englewood Cliffs, N.J., 1974.

PSYC 204 Research Design

Second session subject, 2 credit points

(2 contact hrs: 1 lecture; 1 seminar)

Using examples from various areas of psychology, this subject will provide the student with experience in (a) deciding which of a variety of potential methods or approaches to use in attacking specific research questions, (b) adopting a critical attitude toward the research of others, and (c) developing a creative, enthusiastic, and equally critical attitude with regard to his/her own area of research interest. The subject will not *primarily* emphasise statistical or quantitative methods, but rather the general logic (common sense) behind scientific methods and inference.

Topics will include: general introduction—research, scientific method, experimental inference; psychology as a science—special problems; formulation of a research problem; choice of a method or design; data collection; data analysis; interpretation and explanation of data; significance and generality of the findings; communication to the public.

TEXTBOOK

Anderson, B. F. *The psychology experiment*. Brooks-Cole, Belmont, California, 1971.

PSYC 205 Learning Theory

Second session subject, 4 credit points

(2 contact hrs: 2 lectures)

Topics will include definitions and historical perspective. Grant's categorization of conditioning experiments. Theories of learning. Reinforcement: basic principles. Reinforcement: theoretical issues. Classical conditioning; respondent and operant conditioning. Generalization. Discrimination. Extinction. Verbal Learning Memory.

TEXTBOOK

Deese, J. & Hulse, S. H. *The Psychology of Learning*. 4th ed. McGraw-Hill, N.Y., 1975.

PSYC 206 Learning Laboratory

Second session subject, 3 credit points

(2 contact hrs: 2 laboratories)

Co-req. PSYC 205 Learning Theory

The coursework will comprise group and individual class exercises and research projects based on the work covered in the Learning Theory course.

TEXTBOOKS

No set textbook. References will be given as required during the teaching session.

PSYC 208 Psychological Testing

Second session subject, 3 credit points

(2 contact hrs: 1 lecture; 1 seminar/demonstration)

Topics will include Test Theory—Scales, norms and scores; standardisa-

tion; reliability; validity; item analysis. Testing and assessment procedures for personality; ability; achievement; motivation. General assessment issues.

TEXTBOOK

Cronbach, L. J. *Essentials of Psychological Testing*. 3rd ed. Harper & Row, N.Y., 1970.

300-level

PSYC 320 Psychological Theory A

First session subject, 3 credit points

(1 contact hr; 2 hr seminar per fortnight)

The subject will provide an historical and philosophical context in which to place contemporary theories and psychological systems.
Topics will include psychology and science; associationism; structuralism; functionalism; phenomenology; and psychoanalysis.

TEXTBOOK

Marx, M. H. & Hillix, W. A. *Systems and Theories in Psychology*. McGraw-Hill, N.Y., 1973.

PSYC 322 Social Psychology

First session subject, 6 credit points

(3 contact hrs: 1 lecture; 2 seminars/field work)

Topics will include research methods in social psychology; laboratory and natural settings studies; questionnaire design and attitude measurement; the phenomenological approach in social psychology; interaction in small groups; roles; interpersonal attraction; processes of social influence; the learning of attitudes and values; group conflict; and violence.

Further topics will be selected from among the following: Obedience; authoritarianism and ethnocentrism; political socialization; co-operation and competition; non-verbal communication, proxemics and kinesics; knowing and evaluating persons; and helping behaviour.

TEXTBOOK

Middlebrook, P. N. *Social Psychology and Modern Life*. Knopf, N.Y., 1974.

REFERENCES

Armistead, N. ed. *Reconstructing social psychology*. Penguin, Harmondsworth, Middlesex, 1974.
Swensen, C. H., Jr. *Introduction to interpersonal relations*. Scott, Foresman, Glenview, 1973.
Swingle, P. G. *Social psychology in everyday life*. Penguin, Harmondsworth, Middlesex, 1973.

PSYC 311 Design and Analysis A

First session subject, 3 credit points

(2 contact hrs: 1 lecture; 1 tutorial)

Pre-req. PSYC 203 Psychological Measurement, PSYC 204 Research Design

Topics will include the structure and planning of experiments; the F-Distribution; one-way analysis of variance; two-way analysis of variance; three-way analysis of variance; multiple comparison procedures; non-parametric analysis of variance—the Kruskal-Wallis test.

TEXTBOOK

Ferguson, G. A. *Statistical analysis in psychology and education.* 3rd ed. McGraw-Hill, N.Y., 1971.

PSYC 312 Counselling Psychology

First session subject, 6 credit points

(5 contact hrs: 2 lectures; 2 prac/field; 1 seminar)

Pre-req. PSYC 201 Personality Theory

Desirable pre-req. PSYC 208 Psychological Testing

Topics will include the social context of counselling; counselling and psychotherapy; application of personality theory to practice; establishment of an effective relationship; interview techniques; assessment and testing; diagnosis; special areas of interest including transactional analysis and behaviour modification.

TEXTBOOK

Tyler, L. E. *The Work of the Counsellor.* Appleton-Century-Crofts, N.Y., 1969.

PSYC 313 Experimental and Physiological Psychology

First session subject, 6 credit points

(4 contact hrs: 2 lectures; 2 laboratories)

Topics will include, a more detailed treatment of the topics covered in the second-year Learning course; contemporary viewpoints in motivation; psychophysiology of the autonomic nervous system. The laboratory component will involve training in the recording and analysis of peripheral measures of autonomic nervous system activity.

REFERENCES

References will be provided in class.

PSYC 318 Issues in Psychology A

Second session subject, 3 credit points

(1 contact hr: lecture one week, seminar on alternate week)

The subject will sample a variety of contentious issues from the whole spectrum of psychology, such as, for example, the use of deception in psychological research, behaviourism as humanism, biological constraints on learning, the controversy over Freud's attitude to women and the nature of schizophrenia.

TEXTBOOK

There will be no textbook. Appropriate references will be provided during the course.

PSYC 321 Psychological Theory B

Second session subject, 3 credit points

(1 contact hr; 2 hr seminar per fortnight)

The subject will provide an historical and philosophical context in which to place contemporary theories and psychological systems.

Topics will include behaviourism; Gestalt psychology; Field theory; varieties of S-R theory; varieties of personality theory; engineering and mathematical influences on psychology.

TEXTBOOK

Marx, M. H. & Hillix, W. A. *Systems and Theories in Psychology*. McGraw-Hill, N.Y., 1973.

PSYC 314 Design and Analysis B

Second session subject, 3 credit points

(2 contact hrs: 1 lecture; 1 tutorial)

Pre-req. PSYC 311 Design and Analysis A

Topics will include analysis of covariance; regression analysis; multiple correlation and multiple regression; correlations involving ranks and dichotomous data; and introduction to factor analysis.

TEXTBOOK

Ferguson, G. A. *Statistical analysis in psychology and education*. 3rd ed. McGraw-Hill, N.Y., 1971.

PSYC 315 Psychology of Abnormality

Second session subject, 6 credit points

(5 contact hrs: 2 lectures; 2 prac./field; 1 seminar)

Pre-req. PSYC 201 Personality Theory

Desirable pre-req. PSYC 208 Psychological Testing

Topics will include concepts of normality; effects of physical and mental stress; social and cultural factors; personality disorders; neuroses and psychoses; retardation and brain damage; assessment and diagnosis; therapy; experimental techniques; and new approaches.

TEXTBOOK

Kisker, G. W. *The Disorganised Personality*. 2nd ed. McGraw-Hill, N.Y., 1972.

PSYC 316 Individual Differences*

Second session subject, 6 credit points

(4 contact hrs: 2 lectures; 2 seminars)

Psychology will be considered not from the standpoint of general laws, but from the view of individual variation.

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* This subject will not be offered in 1976.

It is intended to consider the nature, assessment, structure, growth and decline of individual differences in:—

(i) ability;

(ii) personality (including motivation).

In addition it is intended to explore current trends in some more specialized aspects of the above, eg. cognitive styles, creativity, racial differences, sex differences, cross-cultural differences.

TEXTBOOK

Tyler, L. E. *Individual Differences.* Appleton-Century-Crofts, N.Y., 1974.

PSYC 317 Industrial Psychology

Second session subject, 6 credit points

(4 contact hrs: 2 lectures; 2 laboratories/field)

Desirable pre-req. PSYC 203 Psychological Measurement; PSYC 208 Psychological Testing; and PSYC 322 Social Psychology

Topics will include characteristics of industrial organizations and the nature of social relationships within them; motivation and attitudes; structures and communication systems; decision making; consulting and counselling services; special problems within large organizations; and industrial relations.

TEXTBOOK

Maier, N. R. F. *Psychology in Industrial Organisations.* 4th ed. Houghton Mifflin, 1973.

PSYC 319 Issues in Psychology B

Second session subject, 3 credit points

(1 contact hr: lecture one week, seminar on alternate week)

This subject will be an extension of Psychological Issues A and will treat a further sample of topics from a range of contentious issues in Psychology.

TEXTBOOK

There will be no textbook. Appropriate references will be provided during the course.

400-level

PSYC 401 Psychology IV (Honours)

Double session subject, 48 credit points

The course has four parts comprising:

(a) *Research Seminars*

Students are required to conduct two supervised research projects: an empirical exercise which is to be presented as a 15,000 words thesis, and an essay of 8,000 words about a theoretical issue in psychology. Students will be expected to give regular progress reports about their projects during the weekly seminars.

(b) *Significant Developments in Psychology Seminar*
A series of seminars about important theoretical and empirical developments that are occurring in psychology.

(c) *Applications and Current Issues in Psychology Seminar*
A series of seminars about ethical issues and professional applications of psychology in such areas as counselling, personnel selection, education, organizational and industrial psychology.

(d) *Lecture Series*
Topics to be examined by oral or written examinations.

SOCIOLOGY

Sociology I and II are the only subjects offered in Sociology in 1976. Students may however enrol in Sociology with the expectation of being able to complete a major in Sociology over subsequent years.

100-level

SOC 100 Sociology I

Double session subject, 12 credit points

Sociology I is intended as an introduction to the basis of sociological theory, to the nature of sociological understanding and "knowledge", to the application of sociology to current social issues. Students will be expected through the course to develop a sociological analytic way of thinking about social issues. Early focus of the course is on the individual in society and construction of social meaning; from this basis coursework expands into examination of wider society and wider issues of sociological enquiry and debate.

Teaching will be conducted in a one hour lecture, two hour seminar and an "open" seminar each week.

Within this perspective, the subject will move through the following topics:

Session 1

The Individual in Society

A. Nature of sociology, the sociological perspective, explanation, theory.

B. The individual in society—roles, freedom vs. conformity; Socialization, the family, school, mass media, small groups, reference groups, adult socialization; Social control and conformity, deviance.

C. Consciousness and culture, knowledge and epistemology.

Session 2

A. Society as a 'Whole'

The modern shape of work, industrial context of work, capitalism, rationality, features of human relationships in a modern work context

Bureaucracy, alienation and features of Modern Society

Mass Society, economic and political relationships, consumer society

Science, technology and modern society

B. Society as Differentiated

Power; Class

Minority groups, counter culture

Classic organising theories of society, ways of viewing experience and implications for method

C. Belief Systems, Religion and Ideology

D. The Sociologist in Society, Bases of Sociological Method

PRELIMINARY READING

Students will be expected to have read two books prior to the commencement of formal coursework. These are:

Berger, Peter L. *Invitation to Sociology*. Pelican, 1971.
Mills, C. Wright. *The Sociological Imagination*. Pelican, 1971.

TEXTBOOKS

Broom, L. & Selznick, P. *Sociology—A Text with Adapted Readings*. 5th ed. Harper & Row, N.Y., 1973.
Truzzi, M. *Sociology—The Classic Statements*. Random House, New York, 1971.

REFERENCE BOOKS

D'Alton, S. & Bittman, M. *The Social Experience*. Nelson, 1973.
Goffman, E. *The Presentation of Self in Everyday Life*. Allen Lane, London, 1969.
Fromm, E. *The Fear of Freedom*. Routledge & Kegan Paul, London.
Riesman, D. et al. *The Lonely Crowd*. Yale U.P., New Haven, Conn., 1950.
Mead, G. H. *Mind, Self and Society*. University Chicago Press, 1934.
Freud, S. *Collected Works*. Hogarth Press.
Farber, B. *Family & Kinship in Modern Society*. Scott, Foresman, Glenview Illinois, 1973.
Illich, I. *Deschooling Society*. Harper & Row, New York, 1971.
Mills, T. *The Sociology of Small Groups*. Prentice-Hall, Englewood Cliffs, 1967.
Goffman, E. *Asylums*. Anchor Books.
Bredemeir, H. C. & Stevenson, R. M. *The Analysis of Social Systems*. Holt, 1970.
Mannheim, K. *Essays on The Sociology of Knowledge*. Routledge & Kegan Paul, London, 1952.
Faunce, W. C. *Problems of an Industrial Society*. McGraw-Hill, New York, 1968.
Bottomore, T. & Rubel, M. *Karl Marx: Selected Writings in Sociology and Social Philosophy*. Pelican, 1970.
Roszak, T. *The Making of a Counter Culture*. Faber & Faber, London, 1969.
Mills, C. Wright. *The Power Elite*. Oxford University Press, London, 1969.
Bendix, R. & Lipset, S. eds. *Class, Status and Power*. Free Press of Glencoe, 1953.
Encel, S. *Equality & Authority*. Cheshire, Melbourne, 1970.
Mayer, K. B. & Buckley, W. *Class and Society*. 3rd ed. Random House, New York, 1970.
Eisenstadt, S. N. *The Absorption of Immigrants*. Free Press, 1954.
Parsons, T. *The Systems of Modern Society*. Prentice-Hall, 1971.
Coser, L. *The Functions of Social Conflict*. Routledge & Kegan Paul, London, 1956.
Glazer, M. *The Research Adventure*. Random House, New York, 1972.

A more complete list of reference books is available from the Department.

200-level

A number of units will be offered at the 200-level in Sociology in 1976.

In Session I: **Sociology IIa** (9 credit points): Central Themes in Sociology. This subject is in two parts; (1) *Sociological Theory*, involving 1 hour lecture and a 2 hours seminar per week; and (2) *Sociological Method I*, involving 1 hour lecture per week and a 2 hours "works in progress" seminar every second week.

In Session II: **Sociology IIb** (9 credit points): Theory and Research in Sociology.

(1) Special Area Options

One of the following:

Option 1: *Belief Systems, Ideologies*

Option 2: *Structure and Dynamics of Small Groups**

Option 3: *Time, Work and Leisure*

Each option will involve a 1 hour lecture and 2 hour seminar per week. Students electing to do one of these three options are also required to complete:

(2) Sociological Method II

Involving a 2 hour "works in progress" seminar every second week, and individual research projects.

Pre-requisites

Pre-requisites for Sociology IIa is completion at a pass level of Sociology I.

Pre-requisites for Sociology IIb is completion at a pass level of Sociology IIa ("Sociological Theory" and "Sociological Method I"). Students may choose *one* of the three theory options offered in Session II.

SOC 201 Sociology IIa Central Themes in Sociology

First session subject, 9 credit points

(1 hr lecture; and 2 hrs seminar per week)

(1) Sociological Theory

The aim of this unit is to use the study of particular social institutions as a framework for the examination of the basic sociological themes of cohesion, conflict and social change.

TEXTBOOKS

Coser, L. *The Functions of Social Conflict.* Routledge and Kegan Paul, London, 1956.
Merton, R. *Social Theory and Social Structure.* Free Press, N.Y., 1968.
Moore, W. E. *Social Change.* Prentice-Hall, N.Y., 1965.

REFERENCE BOOKS

Bottomore, T. B. *Classes in Modern Society.* Ampersand, U.S.A., 1955.
Dahrendorff, R. *Class and Class Conflict in an Industrial Society.* Stanford U.P., U.S.A., 1966.
Etzioni, A. *Complex Organizations.* Free Press, Glencoe, 1961.
Parsons, T. *Systems of Modern Society.* Prentice-Hall, N.Y., 1966.
Parsons, T. *Essays in Sociological Theory.* Free Press, Glencoe, 1964.
Simmel, G. *Conflict and the Web of Group Affiliations.* Free Press, Glencoe, 1955.
Wolff, K. ed. *The Sociology of Georg Simmel.* Free Press, Glencoe, 1950.

(2) Sociological Method I

(1 hr lecture every week; 2 hrs seminar every second week)

This unit is designed to introduce the student to some of the basic principles and concepts of social research. Following an introduction to some of the epistemological questions raised by social science methodology, the course goes on to emphasize concrete operations in research, including an introduction to the use of basic statistics.

Students will be required to carry out research in the field as a major component of this unit.

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* This option will not be offered in 1976.

TEXTBOOKS

Goode, S. & Hatte, P. *Methods in Social Research*. McGraw-Hill, New York, 1952.
Madge, J. *The Tools of Social Science*. Longmans Green & Co., London, 1967.
Moroney, M. J. *Facts from Figures*. (Penguin, London, 1973).
Moser, C. *Survey Methods in Social Research*. 1958.
Oppenheim, A. N. *Questionnaire Design and Attitude Measurement*. Heinemann, U.K., 1966.

SOC 211 Sociology IIb Theory and Research in Sociology

Second session subject, 9 credit points

(1) **Special Area Options**

Option 1: Belief Systems, Ideologies

(1 hr lecture; and 2 hrs seminar per week)

The option will cover a number of different perspectives or views. Systems of thought and action which involve different ways of viewing the world, and thus provide a broader base for examining our own culture.

TEXTBOOKS

Cohn, N. *The Pursuit of the Millenium*. Temple Smith, London, 1970.
Weber, M. *The Sociology of Religion*. Social Science Paperbacks, London, 1963.

*Option 2: Structure and Dynamics of Small Groups**

(1 hr lecture; and 2 hrs seminar per week)

The small group will be used as a starting point for an examination of the way in which institutions and their activities are, firstly, reflective of the small groups which exist within them. Secondly, how these groups are in turn shaped by the larger scale institutions of which they are a part.

TEXTBOOKS

Dunphy, D. *The Primary Group*. Appleton-Century-Crofts, U.S.A., 1972.
Farber, B. *Family and Kinship in Modern Society*. Scott & Foresman, Glenview, Illinois, 1973.
Goode, P. *The Family*. Prentice-Hall, N.Y., 1964.
Mills, T. *The Sociology of Small Groups*. Prentice-Hall, Englewood Cliffs, U.S.A., 1967.

Option 3: Time, Work and Leisure

(1 hr lecture; and 2 hrs seminar per week)

This option examines the relationship between time, work and leisure in modern industrial society. The course emphasizes the changing status of work as a value from pre-industrial through to post-industrial society.

TEXTBOOKS

Burns, T. ed. *Industrial Man*. Penguin Books, London, 1969.
Dubin, R. *The World of Work*. Prentice-Hall, Englewood Cliffs, N.J., 1958.
Faunce, W. A. ed. *Readings in Industrial Sociology*. Appleton-Century-Crofts, N.Y., 1967.

* This option will not be offered in 1976.

(2) Sociological Method II

(2 hrs seminar every second week)

The subject, as an extension of Sociological Method I, will include "works in progress" seminars aimed at developing individual students' competence, via the medium of individual research projects.

SOC 220 Sociology II Advanced

Double session subject, 6 credit points

(2 hrs seminar per week)

In Sessions I and II, Sociology II Advanced: Foundations of Sociological Thought.

Pre-requisite for students entering Sociology II Advanced is completion of Sociology I at credit level. Co-requisite is completion of Sociology IIa and Sociology IIb.

Pre-requisite for students entering Sociology III Advanced (in 1977) is completion of Sociology IIb and Sociology II Advanced.

Sociology II Advanced will explore the writings of Karl Marx, Max Weber and Emile Durkheim and their contributions to the development of Sociology.

TEXTBOOK

Giddens, A. *Capitalism and Modern Social Theory—an Analysis of the Writings of Marx, Durkheim and Max Weber*. Cambridge University Press, London, 1971.

REFERENCES

Aron, R. *Main Currents in Sociological Thought*. Vols 1 & 2, Pelican Books, 1972.

Bottomore, T. B. & Rubel, M. *Karl Marx: Selected Writings in Sociology and Social Philosophy*. Pelican, 1970.

Durkheim, E. *Essays on Sociology and Philosophy*. Harper Torch Books, 1960.

Durkheim, E. *The Division of Labour in Society*. Free Press, New York, 1964.

Durkheim, E. *The Rules of Sociological Method*. Free Press, New York, 1966.

Freund, J. *The Sociology of Max Weber*. Allen Lane, London, 1968.

Marcuse, H. *Soviet Marxism—A Critical Analysis*. Routledge and Kegan Paul, London, 1958.

Marx, K. *Marx and Engels Collected Works*. Vol. 1. Moscow Foreign Languages Publishing House, 1955.

Marx, K. *Economic and Philosophic Manuscripts*. Moscow Foreign Languages Publishing House, 1970.

Nisbet, R. A. *Emile Durkheim*. Prentice-Hall, 1965.

Popper, K. R. *The Open Society and Its Enemies*. Vol. 2. "Hazel and Marx", Routledge and Kegan Paul, London, 1966.

Weber, Max. *The Protestant Ethic and the Spirit of Capitalism*, translated by Talcott Parsons, Allen & Unwin, London, 1948.

Weber, Max. *The Theory of Social and Economic Organisations*, edited by Talcott Parsons, Hodge, London, 1947.

Weber, Max. *The Methodology of the Social Sciences*, translated and edited by E. A. Schils and H. A. Finch, Free Press, Glencoe, Illinois, 1949.
Weber, Max. *From Max Weber: Essays in Sociology*, translated and edited by H. H. Gerth and C. Wright Mills, Kegan Paul, London, 1948.
Weber, Max. *The Sociology of Religion*. Methuen, London, 1971.

Pre-requisite for students entering Sociology III in 1977 will be completion of Sociology IIa and Sociology IIb (18 credit points at the 200-level).

Postgraduate Study

POSTGRADUATE STUDY

In 1976 students at The University of Wollongong may undertake studies leading to the graduate Diplomas in Accountancy and Education, and to Masters and Doctoral degrees. The conditions governing the award of the doctorates contain not only the usual provision for the Doctor of Philosophy (PhD) by thesis but also a special provision for a PhD awarded on the basis of published work. The higher doctorates, the Doctor of Letters (DLitt) and the Doctor of Science (DSc), are awarded for published work which makes "an original contribution of distinguished merit . . . to the knowledge and understanding of any branch of learning with which the University is concerned".

Students who enrol for postgraduate degrees and diplomas of the University of Wollongong will have to meet the requirements of the University which are available from the Registrar. (Postgraduate students enrolled for University of New South Wales degrees will have to meet the requirements of that University as prescribed in the *University of New South Wales Calendar 1975).*

NOTE: Details of the enrolment procedures, fees and scholarships which apply at the time of printing are set out in the section of this Calendar entitled "General Information".*

Course outlines of the postgraduate diploma courses in Accountancy and Education offered by the University may be found in the following pages.

Students interested in enrolling for graduate degrees and diplomas should contact the Registrar or the Student Enquiries Office for the particulars of conditions of award, formal coursework requirements and further details.

SOME CURRENT RESEARCH INTERESTS

Persons interested in pursuing postgraduate studies should contact the appropriate Departmental Chairman. The research interests of the staff cover a wide range of topics, and some current fields of interest are listed.

ACCOUNTANCY

Accounting theory construction and verification.
Behavioural aspects of management information systems.
Business finance.
Business objectives.
Capital and income concepts, including cost and value concepts, and their measurement.
Capital expenditure decision-making.
Corporate strategy and growth through takeovers and mergers.

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* See pages 64, 68-69 and 71-72.

External reporting in the Extractive Industries.
History and development of accounting thought.
International accounting.
Statements on accounting standards by professional bodies, and other means of improving accounting practice.
Taxation.

BIOLOGY

Microbial Water Relations (the physiological basis of microbial adjustment to extreme water stress):

(i) The mechanism of environmental regulation of polyhydric alcohol production by halophilic algae and sugar-tolerant yeasts.

(ii) Effects of nutritional and other factors on polyol production by sugar-tolerant yeast.

(iii) Cellular mechanisms of retention of "compatible solutes" at high concentrations by halophilic microorganisms.

Photosynthesis/chloroplast function and energy transfer within the plant cell.

Environmental Physiology/Endocrinology.

CHEMISTRY

Chemistry of natural products—alkaloids and hallucinogenic fungi.
Correlation of chemical structure with physiological activity.
Synthetic organic chemistry.
Physical-organic chemistry—kinetic studies of hydrolysis reactions and measurement of thermodynamic acidity constants.
Catalytic deuterium exchange reactions.
Applied quantum mechanics—approximate molecular orbital theory and theories of bonding, electronic spectra and chemical reactivity.
Magneto-chemical and spectral studies of transition metal complexes.
Chemistry of organic sulphur compounds.
Gas chromatography and mass spectrometry of diastereoisomers and metabolites.
Peptide chemistry.
Environmental chemistry.

CIVIL ENGINEERING

Applied mechanics and photoelasticity.
Computer analysis of structures.
Development of composites.
Experimental stress analysis.
Highways and traffic.
Hydraulic model studies.
Interaction between reinforcing and parent materials.

Investigation of the potentialities of blast furnace slag.
Local effects on design wind loads.
Model analysis of structures.
Significance of tyre-pavement interaction on safety.
Study of natural soil slopes and their stability.
Finite-element methods.
Analysis for stresses in an anisotropic soil.
Dynamic analysis and optimization of bulk handling systems.
Random signal analysis and stochastic processes.
Treatment and disposal of industrial effluents.
Noise pollution in buildings.
Optimization techniques applied to buildings.
The design of breakwaters for the protection of coastal works.
Erosion effects of coastal waves.
Design of harbours and docks.
Effect of cyclic loadings on composite members.

ECONOMICS

Industrial economics.
Urban and regional studies.
Economic development.
Economics of migration.
Labour economics.
Monetary economics.
Natural resource economics.

EDUCATION

Classificatory ability in Australian children.
Cognitive development of minority groups.
Convergent, divergent and operational thinking among white and Aboriginal children.
Curriculum studies and development.
Effects of mass media on children.
Enrichment programs for disadvantaged preschoolers.
Schooling and social class.
Socialization of children, migrants and minority groups.
Educational administration.
Organizational behaviour.
Open education.

ELECTRICAL ENGINEERING

Automatic control.
Plant identification.
Electrostatic precipitation.
Static converters.
Electrical machines.
Computer systems.
Fault diagnosis.
Transportation.

ENGLISH

Old English language and literature.
Middle English language and literature.
Early-Tudor literature.
Elizabethan literature.
Early seventeenth century literature.

FRENCH

19th and 20th century novel and theatre.
Literature, painting and film in 20th century France.
The "Nouveau Roman".
Linguistics applied to the teaching of French as a second language.
Intonation analysis.
Audio-visual methods in the teaching of French.

GEOGRAPHY

Geography of transport systems.
Agricultural geography.
Coastal geomorphology.
Fluvial geomorphology.
Urban studies.
Biogeography.
Population studies.
Regional development and planning.

GEOLOGY

The geology of coal measures.
Rock magnetism and related geophysical phenomena.
Textures of igneous and metamorphic rocks.
Invertebrates of the Lower and Middle Palaeozoic of Australasia.
Terrestial and shallow marine sedimentology.
Igneous Petrology of the Illawarra district.
Organic geochemistry.

HISTORY

European History from 1650.
British History from 1500.
Any area of Australian history.
Modern South East Asian history.

HISTORY AND PHILOSOPHY OF SCIENCE

Early 19th century British philosophy of science.
Women's studies.
Embryology and evolution 19th century.
Social relation of science in 19th century and 20th century.
19th and 20th century genetics.

MATHEMATICS

Numerical analysis.
Matrix analysis.
Oceanography.
Nuclear reactor theory.
Computer science.
Statistical decision theory.
Probability.
Operations research.
Functional analysis.
Measure theory.
Abstract algebra.
Logic.
Set theory.
Topology.
Continuum mechanics.
Non-linear partial differential equations.

MECHANICAL ENGINEERING

Determination of flow properties of bulk solids.
Dynamic analysis and optimization of bulk handling systems.
Flow of granular materials.
Design of bins for bulk solids.
Computer simulation.
Process modelling and control.
Random signal analysis and stochastic processes.
System identification studies.
Boiling heat transfer.
Exhaust emissions from internal combustion engines.
Propagation of waves in small bore tubes.
Treatment and disposal of industrial effluents.

METALLURGY

Deformation and fracture at elevated temperatures.
Solidification of metals.
Studies of structure changes in alloys using optical, electron-optical and X-ray methods.
Studies of flow phenomena in packed beds.
Mechanical behaviour of metals with particular reference to sheet forming operations.

PHYSICS

Astronomy—visible and infra-red—near infra-red detectors.
Solid State Spectroscopy of impurities in semi-conductors.

PSYCHOLOGY

Accidents in industry—psychological and physical factors.
Achievement motivation.
Attitudes.
Autonomic components of the orienting reaction.
Bisensory learning including vibrotactile learning.
Classical and instrumental autonomic conditioning.
Decision and risk taking.
Deviant and criminal behaviour.
Disadvantaged children.
Human learning.
Personnel—selection and placement.
Prediction of academic success.
Psychophysiology of the autonomic nervous system.
Social psychology of industry.
Student guidance and counselling services.
Time perception.

SOCIOLOGY

Self-concept.
Socialization.
Small group theory.
Sociology of science.
Impact of science and technology on society.
Science, technology and developing countries.
Social dynamics of ecology movement and response.
Professionalism.
Sociology of organizations.
Military sociology.

DIPLOMA IN ACCOUNTANCY

In accordance with the general conditions governing graduate diplomas, candidates for the Diploma in Accountancy must have been admitted to the degree of Bachelor in the University or other approved institution, and, for the award of the Diploma, are required to complete subjects approved by the Chairman of the Department of Accountancy, and aggregating not less than 48 credit points in one year of full-time study or equivalent.

An important purpose of the Diploma is to provide in a recognized University course a means for accountancy students to study the additional subjects required for cross credit to professional examinations, and which were not included in their Bachelors degree. Further, students who had included in the BCom degree all subjects required for admission to the Australian Society of Accountants could study appropriate 400-level subjects leading to advancement to Senior Associate status. The Diploma may also appeal to graduates in other disciplines who wish to obtain a background in Accounting and Financial Management.

Specific requirements for the Diploma are:

1. Not less than 36 credit points (of the minimum required of 48) are to be obtained from 200-and/or 300-level subjects offered by the Department of Accountancy.
2. With the approval of the Chairman of the Department of Accountancy subjects may be selected from 400-level subjects offered by the Department of Accountancy. (Any subjects selected under this clause may be included in the 36 credit points required under 1.)
3. The whole course for the diploma is to be approved by the Chairman of the Department of Accountancy as providing a coherent course of study.

DIPLOMA IN EDUCATION

The Diploma in Education is a professional course in education for graduates of this or another approved university who seek teacher qualifications. It also serves as an introduction to the research disciplines of education for those who will later pursue higher studies in the field. At present the course is for one year full-time. The various subjects involve lectures, seminars, tutorials, individual assignments and group exercises. Demonstrations of teaching methods and practice teaching are provided in co-operation with the Wollongong Institute of Education and local schools.

COURSE OUTLINE

Hours per week are indicated in brackets. The decision as to whether subjects are offered in first or second session, or both is taken at enrolment time in the light of staff availability.

Education

Australian Education (2)
Educational Practice (2)
Educational Psychology (2)
Sociology of Education (2)
Philosophy and Theory of Education (2)
Seminars in both sessions (2)

Curriculum Studies and Teaching Methods

Students must study two methods, occupying 6 hours weekly including demonstration lessons.

Selected Topics

Physical Education (double session subject) (1)
Communication Skills (2)
Health and Health Education (2)
Electives (4)

Supervised Teaching Practice

Six weeks in term time, at schools in the Wollongong area, or elsewhere by arrangement with the Departmental Chairman.

Australian Education

This subject seeks to lift student awareness of problems in Australian education above the level of opinion and limited personal experience, by presenting them in their historical and comparative setting. Various developments in secondary and tertiary education are discussed, with a view to understanding the interplay of social, economic, political and ideological factors, and the need to subject them to more rigorous research.

TEXTBOOKS

Cowan, R. W. T. ed. *Education for Australians*. Cheshire, 1966.
Partridge, P. H. *Society, Schools and Progress in Australia*. Pergamon, 1968.
Report of the Committee Appointed to Survey Secondary Education in New South Wales (Wyndham Report). Sydney, Government Printer, 1957.

REFERENCE BOOKS

Austin, A. G. *Australian Education 1788-1900*. Pitman, 1961.
Australian College of Education. *Teachers in Australia*. Cheshire, 1966.
Australian Institute of Political Science. *Tertiary Education in Australia*. A. & R., 1965.
Barcan, A. *A Short History of Education in New South Wales*. Martindale Press, 1965.
Bean, C. E. W. *Here, My Son*. A. & R., 1950.
Butts, R. F. *Assumptions Underlying Australian Education*. A.C.E.R., 1961.
Connell, W. F. *The Foundations of Secondary Education*. A.C.E.R., 1967.
Cramer, J. F. & Browne, G. S. *Contemporary Education*. Rev. ed., Harcourt Brace, 1965.
Fogarty, R. *Catholic Education in Australia, 1806-1950*. 2 vols. M.U.P., 1959.
Jackson, R. W. B. *Emergent Needs in Australian Education*. A.C.E.R., 1962.
Kandel, I. L. *Types of Administration*. A.C.E.R., 1938.
Karmel, P. H. *Some Economic Aspects of Education*. Cheshire, 1962.
McKeown, P. J. & Hone, B. W. eds. *The Independent School*. O.U.P., 1967.
Melbourne Studies in Education. M.U.P. *(annually since 1957)*.
Portus, G. V. *Free, Compulsory and Secular—A Critical Estimate of Australian Education*. O.U.P., 1937.
Report of the Committee on the Future of Tertiary Education in Australia (the Martin Report). Canberra, Government Printer, 1965.
Sanders, C. ed. *Technical Education for Development*. Western Australia U.P., 1966.
Wheelright, E. L. ed. *Higher Education in Australia*. Cheshire, 1965.

SELECTED JOURNALS

The Australian Journal of Education. A.C.E.R.
The Australian University. Australian Vice-Chancellors' Committee.
The Forum of Education. Sydney Teachers' College.

Educational Practice

An appreciation of guiding principles common to the teaching of secondary school children will be gained through study of preparation at course, topic and lesson levels and the utilization of school and community resources; aspects of classroom control and discipline; individual and group techniques of teaching; and evaluation procedures including the construction and administration of tests and examinations.

TEXTBOOK

Ebel, R. L. *Essentials of Educational Measurement*. Prentice-Hall, Englewood Cliffs, N.J., 1972.

REFERENCE BOOKS

Alcorn, M. D., Kinder, J. S. & Schunert, J. R. *Better Teaching in Secondary Schools*. Rev. ed. Holt, Rinehart & Winston, 1964.
Clark, L. H. & Starr, I. S. *Secondary School Teaching Methods*. Macmillan, 1959.

Connell, W. F. ed. *The Foundations of Education*. Novak, 1962.
Connell, W. F. *The Foundations of Secondary Education*. Rev. ed. A.C.E.R., 1967.
Dunn, S. S. *Measurement and Evaluation in the Secondary School*. A.C.E.R., 1967.
Grambs, J. D. *et al. Modern Methods in Secondary Education*. Rev. ed. Holt, Rinehart & Winston, 1958.
Gronlund, N. E. *Measurement and Evaluation in Teaching*. Macmillan, N.Y., 1971.
Lindvall, C. M. *Measuring Pupil Achievement and Aptitude*. Harcourt, Brace & World, N.Y., 1967.
Schoenheimer, H. P. *Good Schools*. National Press, Melbourne, 1970.

Educational Psychology

A study of psychology as it bears on the educational process, through a treatment of learning, motivation and the development of adult modes of thinking. Although attention is paid to cognitive development throughout the school years, the cognition of the adolescent is especially considered.

TEXTBOOKS

Ausubel, D. P. & Robinson, F. G. *School Learning*. Holt, Rinehart & Winston, London, 1971.
Ausubel, D. P. & Robinson, F. G. *Study Guide for School Learning*. (Paperback). Holt, Rinehart & Winston, New York, 1970.
de Lacey, P. R. *So many lessons to learn*. Penguin, Ringwood, Vic., 1974.
Hill, W. F. *Learning: a survey of psychological interpretations*. London, 1972.
Muus, R. E. ed. *Adolescent Behaviour and Society*. Random House, New York, 1971.

REFERENCE BOOKS

Ausubel, D. P. *The Psychology of Meaningful Verbal Learning*. Grune & Stratton, N.Y., 1963.
Ausubel, D. P. *Educational Psychology: A Cognitive View*. Holt, N.Y., 1968.
Baller, W. R. & Charles, D. C. *The Psychology of Human Growth and Development*. Holt, N.Y., 1968.
Berlyne, D. E. *Structure and Direction of Thinking*. Wiley, N.Y., 1965.
Bernard, H. W. *Psychology of Learning and Teaching*. McGraw-Hill, N.Y., 1965.
Bruner, J. S. *The Process of Education*. Vintage Books, N.Y., 1961.
Elkind, D. & Flavell, J. H. eds. *Studies in Cognitive Development*. O.U.P., 1969.
Fantini, M. D. & Weinstein, G. *The Disadvantaged*. Harper & Row, N.Y., 1968.
Gordon, I. J. *Studying the Child in School*. Wiley, N.Y., 1966.
Hebb, D. O. *A Textbook of Psychology*. Chandler, San Francisco, 1966.
Kimbilly, J. D. ed. *Learning and the Educational Process*. Rand McNally, Chicago, 1965.
McCandles, B. R. *Children: Behaviour and Development*. Holt, N.Y., 1969.
McGinitie, W. & Ball, S. eds. *Readings in Psychological Foundations of Education*. McGraw-Hill, N.Y., 1968.
Messer, E. A. *Children, Psychology and the Teacher*. McGraw-Hill, London, 1967.
Smart, M. S. & Smart, R. C. *Children: Development and Relations*. Macmillan, N.Y., 1967.

Travers, R. M. W. *Essentials of Learning*. Macmillan, N.Y., 1967.
Vernon, P. E. *The Structure of Human Abilities*. Methuen, London, 1961.
Wattenberg, W. W. *The Adolescent Years*. Harcourt, Brace & World, N.Y., 1955.

SELECTED JOURNALS

British Journal of Educational Psychology.
Education Research.
Harvard Education Review.

Sociology of Education

The aim of this course is to study all aspects of education within a sociological perspective. Models of society will be discussed as will the role of the school in society.

TEXTBOOKS

Boocock, S. *An introduction to the Sociology of Learning*. Houghton Mifflin, Boston, 1972.
Hargreaves, D. H. *Social Relations in a Secondary School*. Routledge & Kegan Paul, London, 1967.
Hargreaves, D. H. *Interpersonal Relations and Education*. Routledge & Kegan Paul, London, 1972.
Waller, W. *The Sociology of Teaching*. John Wiley & Son, New York, 1965.

REFERENCE BOOKS

Banks, O. *The Sociology of Education*. Batsford, London, 1968.
Berger, P. *Invitation to Sociology. A Humanistic Perspective*. Doubleday Anchor, New York, 1963.
Clausen, John A. ed. *Socialization and Society*. Little Brown, Boston, 1968.
Cosin, B. R. *et al. School and Society: A Sociological Reader*. Routledge & Kegan Paul, London, 1971.
Dreitzel, H. P. *Recent Sociology*. vols. 1 & 2, Macmillan, London, 1969.
Goffman, E. *The Presentation of the Self in Everyday Life*. Doubleday, New York, 1959.
Manis, J. G. & Meltzer, B. N. eds. *Symbolic Interaction. A Reader in Social Psychology*. 2nd ed. Allyn & Bacon, 1972.
Musgrave, P. W. *The Sociology of Education*. Methuen, London, 1965.
Pateman, T. *Counter Course. A Handbook for Course Criticism*. Penguin, 1972.
Rose, A. *Human Behaviour & Social Processes*. Houghton Mifflin, Boston, 1962.
Rose, P. I. ed. *The Study of Society*. Random House, N.Y., 1967.
Shephard, Jon. M. *Kaleidoscope, Adapted Readings for Introductory Sociology*. Harper & Row, New York, 1973.
Shipman, M. D. *The Sociology of the School*. Longmans, London, 1968.
Swift, D. F. *The Sociology of Education*. Routledge & Kegan Paul, London, 1969.
Swift, D. F. ed. *Basic Readings in the Sociology of Education*. Routledge & Kegan Paul, London, 1970.

SELECTED JOURNALS

Sociology of Education. The American Sociological Assoc.
American Sociological Review.
Australian and New Zealand Journal of Sociology.
British Journal of Sociology.

Philosophy and Theory of Education

A study of the nature and scope of educational theory. By tracing the development of educational ideas in western culture, it is seen how the various disciplines of educational theory have emerged to cope with problems of value, knowledge and public education.

TEXTBOOK

Peters, R. S. *The Philosophy of Education*. O.U.P., London, 1973.

REFERENCE BOOKS

Archambault, R. D. ed. *Philosophical Analysis and Education*. Routledge, 1966.
Brown, L. M. *General Philosophy in Education*. McGraw-Hill, 1966.
Brubacher, J. S. *A History of the Problems of Education*. 2nd ed. McGraw-Hill, 1966.
Buber, M. *Between Man and Man*. Fontana, 1961.
Connell, W. F. *et al. The Foundations of Education*. Novak, 1962.
Curtis, S. J. & Boultwood, M. E. *A Short History of Educational Ideas*. 4th ed. University Tutorial Press, 1965.
Dewey, J. *Democracy and Education*. Macmillan, 1916.
Dewey, J. *The Child and the Curriculum and The School and Society*. Phoenix Books, Chicago U.P., 1956.
Jeffreys, M. V. C. *Glaucon*. Pitman, 1955.
Maritain, J. *Education at the Crossroads*. Yale U.P., 1961.
Morrish, I. *Disciplines of Education*. Allen & Unwin, 1967.
Nash, P. *et al.* eds. *The Educated Man*. Wiley, 1965.
N.S.S.E. 54th Yearbook. *Modern Philosophies and Education*. Chicago U.P., 1955.
Niblett, W. R. ed. *Moral Education in a Changing Society*. Faber, 1963.
Peters, R. S. *Ethics and Education*. Allen & Unwin, 1966.
Price, K. *Education and Philosophic Thought*. Allyn & Bacon, 1962.
Reid, L. A. *Philosophy and Education*. Heinemann, 1962.
Rusk, R. R. *The Doctrines of Great Educators*. 2nd ed. Macmillan, 1954.
Ulich, R. H. *History of Educational Thought*. American Book Co., 1945.
Wynne, J. P. *Theories of Education*. Harper, 1963.

SELECTED JOURNALS

Educational Theory. University of Illinois.
Educational Philosophy and Theory. Univ. of N.S.W.
Harvard Educational Review. Harvard University.

Commerce Method

The aim is to develop competent and critical teachers of economics and commerce. These subjects are discussed in relation to a general theory of education, problems of programming, lesson preparation and presentation.

REFERENCE BOOKS

Combs, Arthur W. *The Professional Education of Teachers*. Allyn & Bacon, Inc., 1970.
Edwards, *et al. The Teaching of Economics*.
Fenton, E. *Teaching the New Social Studies in Secondary Schools*. Holt, Rinehart & Winston, 1967.
Lumsden, Keith G. ed. *New Developments in the Teaching of Economics*. Prentice-Hall, 1967.

Oliver, J. M. *The Principles of Teaching Economics*. Heinemann Education Books Ltd., 1973.

SELECTED JOURNALS

American Economic Review. American Economic Association.
Economica. London School of Economics.
The Economic Record. The Economic Society of Australia and New Zealand.

English Method

This course deals with the aspects of language, expression and literature that concern the teacher in the secondary school. Language work examines contemporary theories and practice and the changing nature of linguistic studies. Expression themes include the fostering of responsive writing and aims and methods in oral practice. In the examination of literature the need is stressed to foster enjoyment and understanding at various levels. Some attention is given to testing, the programming of work and the interpretation of curricula.

REFERENCE BOOKS

Goldstein, M. B. *The Teaching of Language in Our Schools*. Macmillan, 1966.
Hoffman, C. H. *Speech in the Australian Classroom*. Ure Smith, 1964.
Holbrook, D. *English for the Rejected*. Cambridge U.P., 1964.
Holbrook, D. *The Secret Places*. Methuen, 1965.
Schoenheimer, H. R. *Education Through English*. Cheshire, 1967.
Walsh, J. H. *Teaching English*. Heinemann, 1965.
Whitehead, F. W. *The Disappearing Dais*. Chatto & Windus, 1966.

SELECTED JOURNALS

English in Australia. Australian Association for the Teaching of English, Melbourne.
The Teaching of English. English Teachers' Association of N.S.W.

Geography Method

A survey of the principles and problems underlying the selection, organization and presentation of geographical knowledge. Topics include: the place of geography in the secondary school, the nature and organization of programs, the inter-relationship of systematic and regional geography, and specific aspects of classroom practice and field studies.

REFERENCE BOOKS

Biddle, D. S. ed. *Readings in Geographical Education*. Vol. 1. Whitcombe & Tombs, Sydney, 1968.
Biddle, D. S. & Deer, C. E. eds. *Readings in Geographical Education*. Vol. 11. Whitcombe & Tombs, Sydney, 1973.
Chorley, R. J. & Hagget, P. eds. *Frontiers in Geographical Teaching*. Methuen, London, 1965.
Graves, N. ed. *New Movements in the Study and Teaching of Geography*. Cheshire, Melbourne, 1972.

Long, M. & Robinson, B. S. *Teaching Geography*. Heinemann Educational Books, London, 1966.
Walford, R. ed. *New Directions in Geography Teaching*. Longman, London, 1973.

SELECTED JOURNALS

Australian Geographer. Geographical Society of N.S.W.
Geography. Geographical Association, London.
Journal for Geography. National Council for Geographic Education, Chicago.

History Method

Students are introduced to the theory and practice of the teaching of history at the secondary school level through a study of the principles and problems underlying the selection, organization and presentation of historical information. Topics include the nature of history; the purposes behind its teaching; programming; practical aspects of classroom work.

REFERENCE BOOKS

Carr, E. H. *What is History?* Pelican, 1961.
Dance, E. H. *The Place of History in Secondary Teaching*. Harrap, 1970.
Dufty, D. G. *Teaching About Society*. Rigby, 1970.
Elton, G. R. *The Practice of History*. S.U.P., 1967.
Hancock, W. K. *Attempting History*. A.N.U., 1969.
Stretton, H. *The Political Sciences*. Routledge & Kegan Paul, 1969.
Thompson, D. *The Aims of History*. Thames & Hudson, 1969.
Walshe, R. & Little, N. eds. *Ways We Teach History*. History Teachers' Association, Sydney, 1970.

SELECTED JOURNALS

English-History Bulletin. N.S.W. Department of Education.
Teaching History. Journal of the N.S.W. History Teachers' Association.
Teaching Method Bulletin. N.S.W. History Teachers' Association.

Mathematics Methods

Mathematics First Method seeks to develop in students an awareness of various methods possible in secondary school. Emphasis is placed on the development of concepts, use of discovery and grading of material. Aims for different age and ability groups are related to these. Students doing another subject method as well will take this course.

Mathematics Second Method deals with a selection of these topics from an advanced standpoint, and is for students taking mathematics as a double method.

REFERENCE BOOKS

Courant, R. & Robbins, H. *What is Mathematics?* 4th ed. O.U.P., 1961.
Howson, A. G. ed. *School Mathematics Project*. C.U.P., 1965.
Coxeter. *Introduction to Geometry*. Wiley, 1963.
Kline, M. *Mathematics: A Cultural Approach*. Addison-Wesley, 1962.
National Council of Teachers of Mathematics. *Computer-orientated Mathematics*. 1965.

Oalsley, C. O. & Allendoerfer, C. B. *Principles of Mathematics*. McGraw-Hill, 1955.
Reeve. *Mathematics for the Secondary School*. Holt, Rinehart & Winston, 1960.
Schaaf, W. L. *Mathematics for Everyday Use*. Barnes & Noble, 1958.

SELECTED JOURNALS

Australian Mathematics Teacher.
Mathematics Teacher. National Council of Teachers of Mathematics.
N.S.W. Department of Education Mathematics Bulletin.

Science Methods

Science First Method seeks to prepare graduates to teach at all high school levels in the areas of physics and chemistry. It is also concerned with science curricula, teaching aids, records and assessment, teaching procedures and safety precautions.

Science Second Method seeks to prepare graduates to teach biology and geology at all high school levels. It has a method component that is specially concerned with the aims and philosophy of science teaching.

Science First Method is to be preferred if the student takes only one science method.

REFERENCE BOOKS

A Biology Course for Teachers. Correspondence course prepared in the School of Biological Sciences, University of Sydney.
Dictionary of Geological Terms. Dolphin Reference Book, 1962.
Heller, R. L. ed. *Geology and Earth Science Sourcebook for Elementary and Secondary Schools*. American Geological Institute.
McDonald, Massey & Tebbutt. *Enquiring into the Earth*.
Meyer, G. R. ed. *Field Excursions in Biology for Fifth and Sixth Forms*. Dept. Education, N.S.W., In-service Training Branch, 1965.
Moody, P. A. *Introduction to Evolution*. Harper & Row, 1962.
Notes on Biology—Forms V and VI. Dept. Education, N.S.W., In-service Training Branch.
Nuclear Research Foundation. *Science for High School Students*. N.S.W. Government Printer, Sydney, 1964.
Nuclear Research Foundation. *Science for High School Students—a Teacher's Manual*. N.S.W. Government Printer, Sydney, 1964.
Nuclear Research Foundation. *Senior Science for High School Students*. Parts 1-3. N.S.W. Government Printer, Sydney, 1966.
Parry & Steiner. *Chemistry: Experimental Foundations*. 1970.
Parry & Steiner. *Chemistry: Experimental Foundations*. Teachers Guide.
Parry & Steiner. *Chemistry: Experimental Foundations*. Laboratory Manual.
Sinnotl, E. W., Dunn, L. C. & Dobzhansky, T. *Principles of Genetics*. McGraw-Hill, 1958.
UNESCO. *Sourcebook for Science Teaching*. UNESCO, 1962.
Villee-Dethler. *Biological Principles and Processes*. W. B. Saunders, 1971.

SELECTED JOURNALS

Australian Science Teachers' Journal. Australian Science Teachers' Association.
Science Education News. Science Teachers' Association of N.S.W.

Selected Topics

The selected topics are of two kinds: professional skills and academic electives.

(a) Lectures and exercises in certain professional skills given generally at the Wollongong Institute of Education include:

(i) *Physical Education*. The aim is to encourage personal physical fitness in the Diploma student, as well as to prepare him for the duties in this area that fall to the general teacher.

(ii) *Health and Health Education*. Students are given guidance concerning physical and mental health, and informed of resources available in the schools.

(iii) *Communication Skills*. Students are made more aware of problems of communication in the classroom, and their own personal competence is improved.

(b) *Electives*. Lectures and tutorials are offered in a variety of electives designed to provide opportunity for students to pursue some studies at greater depth. While the composition of the student group from year to year will partly determine which electives are offered, it is intended to provide a range representative of the main disciplines of education. Students are expected to choose electives that enable them to draw in some way on their previous studies.

Supervised Teaching Practice

Students engage in the equivalent of eight weeks' full-time teaching practice in schools. They are expected to plan learning units, observe and take individual lessons, develop classroom routines and controls, test and evaluate pupil learnings, and become acquainted with the general school duties of a teacher. As the practice situation is meant to be the application in the field of principles studied and informal subjects already described, a detailed reference list is not appropriate, but a specific orientation to Teaching Practice is provided by the following books.

REFERENCE BOOKS

Cohen, A. & Garner, N. A. *A Student's Guide to Teaching Practice*. L.U.P., 1963.

Devor, J. W. *The Experience of Student Teaching*. Macmillan, 1964.

Student Teaching in Secondary Schools. 4th ed. McGraw-Hill, 1964.

Map of the Campus

1 METALLURGY
METALLURGY & BIOLOGY

2 FOUNDRY

3 CIVIL ENGINEERING
CIVIL ENGINEERING

4 ENGINEERING
ELECTRICAL ENGINEERING
MECHANICAL ENGINEERING

5 GARDENERS

6 WORKSHOPS

7 HEAT ENGINES LABORATORY

8 ADMINISTRATION

9 HUT
COUNSELLING CENTRE PHILOSOPHY H.P.S.

10 SPORTS HUT

11 UNION

12 A.C.S. ANNEXE
BIOLOGY & FRENCH

13 SPORTS PAVILION

14 LECTURE THEATRE

15 A.C.S.
COMPUTER CENTRE ENGLISH
GENERAL STUDIES GEOLOGY
HISTORY MATHEMATICS

16 LIBRARY

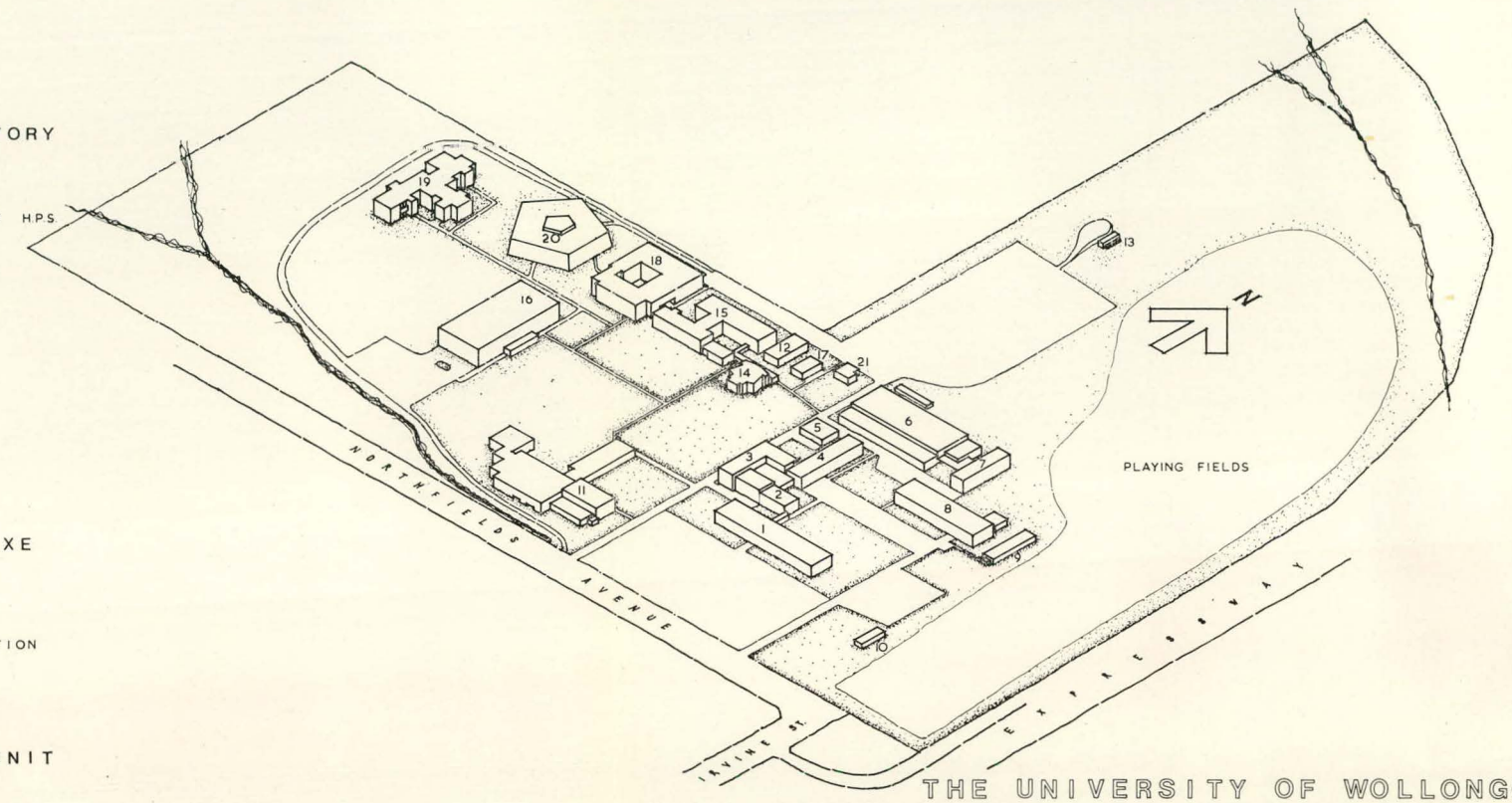
17 LECTURE THEATRE ANNEXE

18 SCIENCE
CHEMISTRY & PHYSICS

19 SOCIAL SCIENCE
ACCOUNTANCY ECONOMICS EDUCATION
GEOGRAPHY H.P.S. PSYCHOLOGY
SOCIOLOGY

20 PENTAGON
LECTURE THEATRES

21 EDUCATION LIAISION UNIT
N.S.W. DEPARTMENT OF EDUCATION



THE UNIVERSITY OF WOLLONGONG

1976

ADEPT PRINTING CO.

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Calendar 1976